

TRAFFIC FORECAST TECHNICAL MEMORANDUM

KINSTON BYPASS ALTERNATIVES STUDY

TIP PROJECT R-2553
LENOIR, JONES & CRAVEN COUNTIES

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1.0 INTRODUCTION

The North Carolina Department of Transportation (NCDOT) is currently studying alternatives for a US 70 bypass highway around the City of Kinston, North Carolina as part of the Transportation Improvement Project (TIP) project number R-2553. As part of the alternatives analysis process, traffic forecasts are needed for each alternative to evaluate the feasibility and operations of the proposed bypass alternatives. Parsons Brinckerhoff (PB) was retained to assist NCDOT in developing traffic forecasts for the TIP project R-2553.

This *Traffic Forecast Technical Memorandum* documents the travel demand modeling and forecasting methodologies and assumptions used in developing future year traffic forecasts for each of the proposed alternatives.

1.1 Project Location

The City of Kinston is located in eastern North Carolina in the northwestern section of Lenoir County along US 70 (see Figure 1). It is located approximately 1.5 hours' drive (80 miles) east from Raleigh and is situated between two major cities: Goldsboro to the west and New Bern to the east. The City of Kinston is also the home of the Global TransPark, a combined airport (Kinston Regional Jetport at Stallings Field) and industrial complex developed by the State of North Carolina.

1.2 Roadway Network

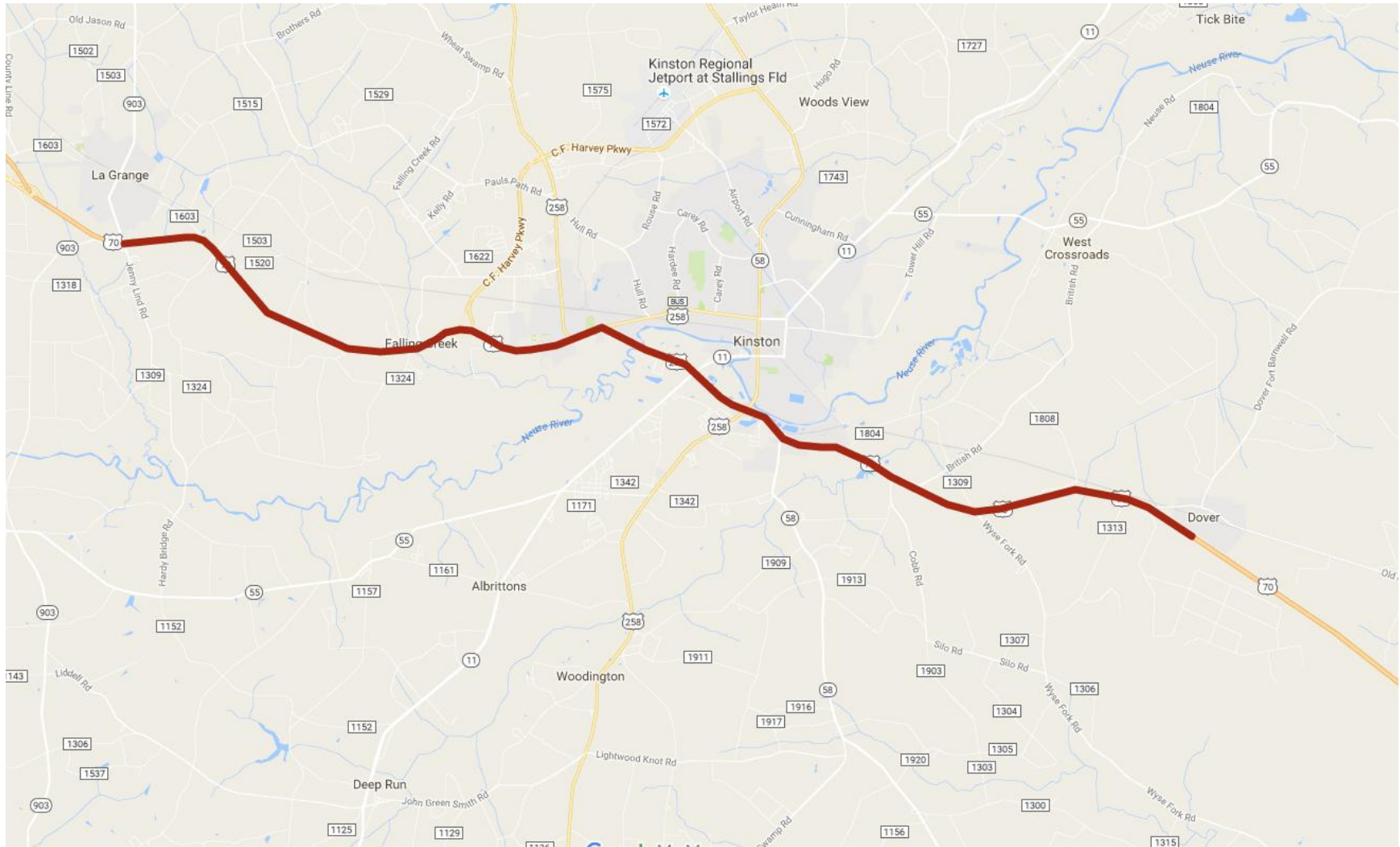
Figure 1 shows that the City of Kinston is currently served by five major US and NC highways which pass through the center of the town: US 70, US 258, NC 11, NC 55, and NC 58. In addition, the C.F. Harvey Parkway, locally signed as NC 148, provides an east-west highway along the northern parts of the City of Kinston and serves as the primary access to the Global TransPark. The City of Kinston and Lenoir County are included in NCDOT Division 2. Specific features of the roads in the study area are described next.

- US 70 is a four-lane major east-west highway providing vital link to eastern North Carolina by providing connections to Raleigh and I-95 to the west, as well as multiple municipalities in eastern North Carolina including Goldsboro, La Grange, Kinston, Dover, and New Bern. The posted speed limit along US 70 ranges from 55 miles per hour (mph) on the western and eastern approaches to 45 mph within Kinston. The roadway has multiple traffic signals and provides access to retail and other developments within Kinston. US 70 is classified as 'Rural Principal Arterial' outside of the Kinston city limits and as 'Other Principal Arterial' within the Kinston urbanized area. US 70 is identified on NCDOT's Strategic Highway Corridor Vision Plan as a future freeway from Raleigh to Morehead City. For this entire distance, the US 70 corridor is being studied separately as part of the US 70 Corridor Study (also referred to as Super 70).
- US 258 is primarily a two-lane north-south highway providing regional connections to Jacksonville to the south and Farmville and Tarboro to the north. Through the City of Kinston, US 258 provides

access to US 70 from the south. US 258 has a wider five-lane cross-section north of US 70, and serves as the primary existing access between US 70 and the Global TransPark. It is posted at 45 mph speed limit. US 258 is classified as 'Rural Minor Arterial' outside of the Kinston city limits and 'Other Principal Arterial' within the Kinston urbanized areas. US 258 is identified on NCDOT's Strategic Highway Corridor Vision Plan as a future expressway south of US 70 to NC 24.

- NC 11 is a two-lane rural road providing access to I-40 to the southwest in Duplin County. North of Kinston, NC 11 is a multi-lane highway providing access to Greenville, located 30 miles north-east of Kinston. Within Kinston, NC 11 is a multi-lane roadway that crosses US 70 and crosses through downtown. NC 11 is classified as 'Rural Major Collector' outside of the Kinston city limits and as 'Other Principal Arterial' within the Kinston urbanized areas. NCDOT's Strategic Highway Corridor Vision Plan identifies NC 11 as a future freeway from I-40, continuing north through Kinston (on new alignment in downtown) to US 264 west of Greenville.
- NC 55 is a two-lane rural highway providing east-west access in eastern North Carolina. Within Kinston, NC 55 merges with NC 11 through the downtown area. NC 55 is classified as 'Rural Major Collector' outside of the Kinston city limits. Within the Kinston urbanized areas, NC 55 is classified as 'Minor Arterial' south and west of downtown and as 'Other Principal Arterial' within downtown and to the northeast.
- NC 58 is a two-lane state road, providing north-south connection in Kinston. NC 58 is classified as 'Rural Major Collector' outside of the Kinston city limits. Within the Kinston urbanized areas, NC 58 is classified as 'Other Principal Arterial' in the downtown area and as 'Minor Arterial' north of downtown.
- The C.F. Harvey Parkway (NC 148) provides an east-west link in northern Kinston from US 70 on the west to NC 58. It is comprised of two main sections. Between US 70 and US 258, the recently constructed Parkway extension is a four lane freeway with interchange access at both US 70 and US 258. Between US 258 and NC 58, the Parkway is a four lane divided highway section with traffic signals along major intersections, including the intersections which serve as the primary access points to the Global TransPark. This roadway is classified as 'Other Principal Arterial.'

Figure 1. Study Area Map



2.0 PROJECT DESCRIPTION

The purpose of the TIP project R-2553 is to evaluate highway bypass alternatives that would provide an alternate option to using the existing US 70 through the City of Kinston. The proposed bypass is intended to serve as a major diversion route for motorists traveling east-west on US 70. In addition to the bypass alternatives, a non-bypass alternative of upgrading US 70 between La Grange and Dover to a freeway is also to be evaluated.

2.1 History

The Kinston Bypass has been considered by NCDOT in previous forecasts and studies for projects in and around the City of Kinston. The following forecasting projects were reviewed as part of the current forecasting efforts:

- North Carolina Global TransPark (GTP) Study – May 1996
- R-2719A C.F. Harvey Parkway (formerly Crescent Road) – June 2004
- Kinston Eastern Loop/ NC 11 Relocation (FS-0802) – May 2008
- US 70 Strategic Highway Corridor Study (including US 70 at NC 11/NC 55 Feasibility Study)
- US 70 Kinston Bypass (R-2553) – July 2009
- R-2554 Goldsboro Bypass (Public Hearing Map) – project completed May 2016
- US 70 Kinston Bypass (R-2553) – July 2012

In addition, the Kinston Comprehensive Transportation Plan (CTP), adopted in February, 2008, provides future regional forecasts assuming multiple transportation projects identified for the area. Many of these projects are not included in the financially feasible network identified for the current Kinston Bypass forecast.

A review of these forecasts was conducted and compared with model runs of the latest Kinston Area regional demand model using TransCAD software. This demand model was initially developed by NCDOT in April 2012 and has been used as part of the latest forecast.

Note that there is general decrease when comparing Kinston forecast before 2012 and after. This reduction in future traffic is primarily a result of reevaluation of expected land use growth in the Kinston area including the Global TransPark that was made as part of the 2012 forecast. A detailed comparison between the older forecasts and the updated analysis is provided in Appendix B page B4 of this report.

2.2 Fiscal Constraint

The City of Kinston is not part of any Metropolitan Planning Organization (MPO). Consequently, the current Kinston study area is considered a non-MPO area, and thus not subject to the federal requirement of preparing a fiscally-constrained transportation plan. Consequently, specific projects assumed as part of the current forecasting efforts were determined based on consultation with NCDOT by assuming that only projects identified in the current NCDOT STIP were part of the fiscally constrained network. These future roadway projects and other assumptions are outlined in Section 4.2.

2.3 Alternatives

As part of the current traffic forecasting efforts, eleven US 70 Bypass Build alternatives were identified in addition to Upgrade US 70 and No-Build alternatives. For each alternative, traffic forecasts were prepared for two analysis years - 2040 design year conditions, and 2015 existing year conditions.

2.3.1 Description of Bypass Alternatives

Figure 2 shows the conceptual location/ alignment of the alternatives being studied by NCDOT (received as part of the NCDOT Forecast Request along with a conceptual graphic illustration for each alternative). Table 1 lists the alternatives examined for this forecast. Appendix A also provides the forecast for each alternative which can be reviewed for a more detailed examination of interchange connections and alignments. In all cases, it should be recognized that the specific alignments are preliminary and subject to change as part of the environmental analysis process. Also note that all of the Bypass alternatives examined as part of this forecast represent southern bypasses of Kinston.

Table 1. Bypass Alternatives Evaluated

Forecast Scenario	Alternatives (See Detailed Study Alternatives Map)	Alignment Color
1	No Build	Black
2	Alternative 1 – Upgrade Existing US 70 to freeway	Orange
3A	Alternative 1S (Scenario S5) – Shallow Southern Bypass with 5 interchanges	Orange
3B	Alternative 1S (Scenario P4) – Shallow Southern Bypass with 4 interchanges & rerouting of existing US 17 to NC 58	Orange
4	Alternative 11	Red
5	Alternative 12	Red
6	Alternative 31	Yellow
7	Alternative 32	Yellow
8	Alternative 63	Pink
9	Alternative 65	Pink
10	Alternative 51	Blue
11	Alternative 52	Blue
12	Alternative 35	Purple
13	Alternative 36	Purple

Note: Two variations are examined for Alternatives 1S – Shallow Southern Bypass. The differences between scenarios S5 and P4 include which crossroads have interchanges as well as the manner in which the existing US 70 ties into the Shallow Bypass on the east.

For all alternatives, it is assumed that 70 mph posted speed would be provided. This includes improvements to existing roadway segments including the existing US 70 and C.F. Harvey Parkway. Also note that for all alternatives it is assumed that the 70 mph freeway operations will apply for the entire section from the US 70/ NC 903 interchange in LaGrange east through Kinston to the US 70/ NC 41 interchange south of Cove City. For alternatives that begin or end within these boundaries, it is assumed that US 70 would be upgraded on the eastern and western approaches to the proposed Bypass alignments.

2.3.2 Comparison of Interchange Access Locations

Each of the twelve alternatives (in addition to the No Build) has specific interchange locations identified and assumed for the traffic forecast. As part of the forecast, turn movements are developed for each of these locations. For comparison purposes, the specific interchange locations are identified in Table 2.

Two forecasts have been developed for the Alternative S-1 Shallow Bypass. Both alternatives assume that interchanges are provided at (A) the western tie-in with existing US 70, (B) NC 11/55, (C) US 258, and (D) NC 58. The designation of "P" and "S" refers to the type of interchange connection at (E) the eastern tie-in with US 70. The "S" suffix refers to a full access system interchange at the E location resulting in 5 interchanges (hence the S5 designation).

Compared with S5, the P4 alignment has only 4 interchange with no interchange access at location E. Note that the P originally referred to partial access at this location, but the final alignment layout assumes that all existing US 70 traffic would access downtown Kinston from the NC 58 interchange (D). To facilitate this movement, US 70 would be realigned to overlap with NC 58 between the existing US 70 and the proposed NC 58 interchange.

Recognizing that fewer interchanges (or a prioritized phasing of interchanges) may be considered, a series of AADT traffic estimates are also prepared and documented in Appendix C examining variations in AADT for the Shallow Bypass alternatives with fewer interchanges.

2.3.3 Comparison of Alignment, Travel Time, and Speed of Alternatives

As noted in the text, the length of the alternatives vary with each alternative connecting into US 70 at different locations west and east of Kinston. In order to understand the desire of US 70 traffic to utilize specific bypasses, a comparison of the total length and travel times of each alternative was developed. This comparison takes into account required new alignments as well as the takeoff points to/from US 70.

Table 2 provides a summary of the assumed length for each alternative assuming the same western tie-in point (the NC 903 interchange just south of LaGrange) and eastern termini (the NC 41 interchange south of Cove City) on US 70.

In addition to length, the overview includes an estimate of the travel time from the western and eastern limits. It is assumed that for all of the Bypass alternatives (including Upgrade US 70) 70 mph operating

speeds will be provided. This is compared to the existing US 70 which includes 55 mph and 45 mph sections as well as multiple traffic signals.

As an additional source of information, the travel times were adjusted to reflect the potential impact of signal delays, particularly on US 70 in the No Build scenario. Although US 70 is posted at between 45 mph and 55 mph, it also has a heavy concentration of traffic signals which will introduce delays and reduce average travel speeds. As shown in Table 2, signal delay was assumed to increase travel times (and decrease travel speeds) by approximately 40 percent on the existing US 70 sections. Note that this reduction effectively reduced travel speeds to between 35 and 40 mph on US 70 which still maintains LOS C/D operations on the US 70 arterial sections.

A review of Table 2 indicates the following:

- The No-Build alternative is estimated to require 33 minutes to travel east-west through the study area if signals are not considered. Note, however, that with a 40 percent delay related to traffic signals during the peak congested periods, this estimate increases to 46 minutes. The existing US 70, Alt 1 and Alt 1S are the shortest alignments through the study area at about 28.7 miles.
- The Upgrade US 70 alternative, Alt 1, reduces east-west travel time (25 minutes) compared with the No-Build (33 minutes free flow / 46 minutes with assumed signal delays). It is assumed that in Alt 1 US 70 is improved to 70 mph including the construction of interchanges.
- The new alignment Bypass alternatives provide east-west travel time (25 -28 minutes) through Kinston. The higher speeds on the Bypass make the Bypass the preferred route for east-west through traffic as compared with existing US 70 (No Build alternative) during both uncongested and congested periods.

Note that the above analysis was not used directly in the forecasting process. Instead these observations were utilized in comparing the reasonableness of the TransCAD model runs for each alternative.

Figure 2. Kinston Bypass Alternatives

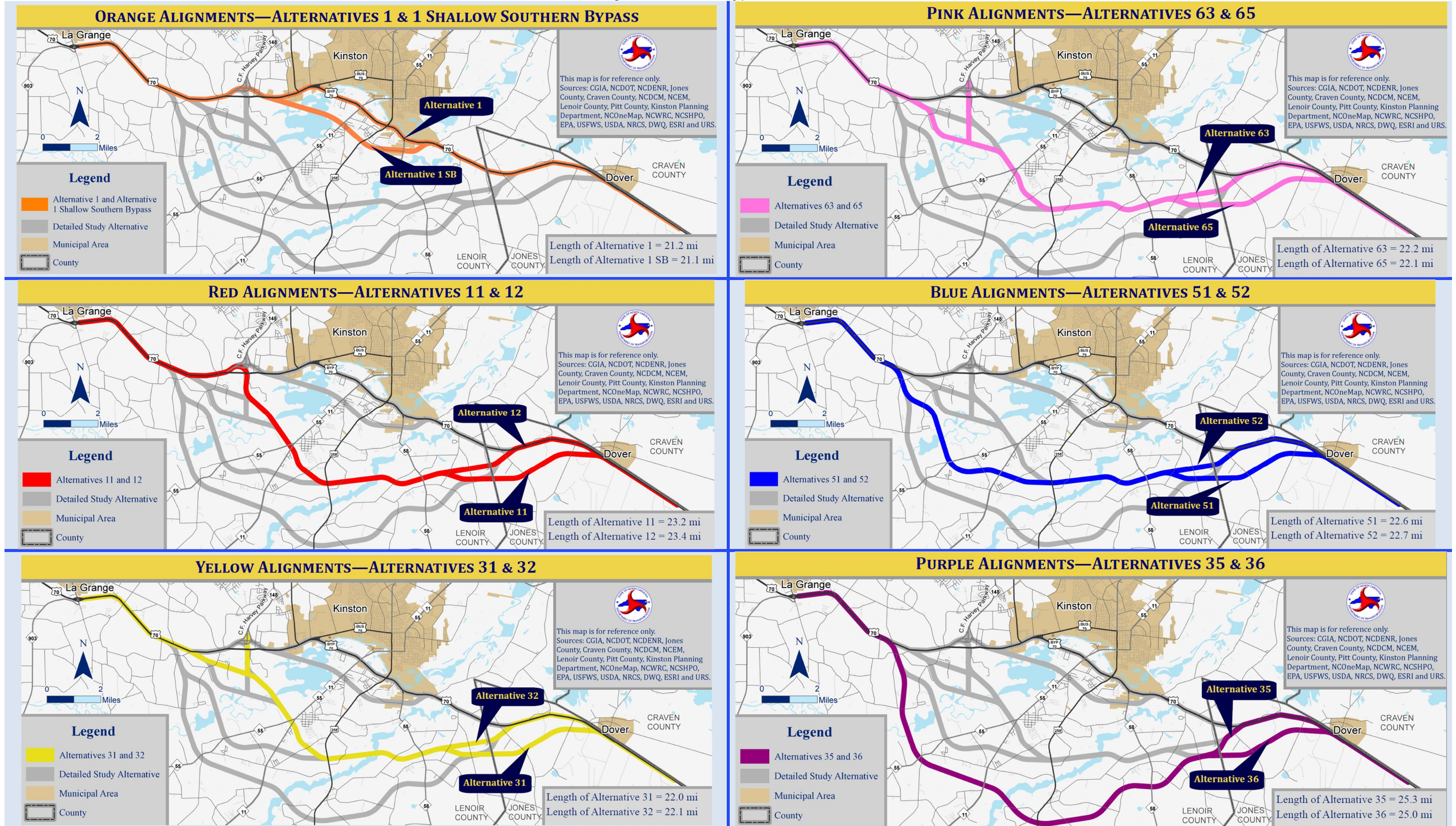


Table 2. Proposed Interchanges, Length and Travel Time along Bypass Alternatives

ALT	INTERCHANGES															DISTANCE (mi)			TRAVEL TIME (min)			
	NC 903	Willie Measley Rd Jim Sutton Rd	US 70 Tie-in (West)	Albert Sugg Rd Barwick Station Rd	C.F. Harvey Pkwy	US 258	US 70 Bus	NC 55	NC 11	US 258	NC 58	Wyse Fork Rd	Old US 70	US 70 Tie-in (East)	NC 41	Total	US 70	New Alignment	Total	US 70	New Alignment	Total
No Build	X														X		28.7	-	28.7	46.3	-	46.3
Alt 1	X	X		X	X	X	X		X	X	X	X	X		X	10	28.7	-	28.7	24.6	-	24.6
Alt 1S (S5)	X	X		X	X				X	X	X	X	X	X	X	9	19.5	9.2	28.7	16.7	7.9	24.6
Alt 1S (P4)	X	X		X	X				X	X	X	X	X		X	8	19.5	9.2	28.7	16.7	7.9	24.6
Alt 11	X	X		X	X				X	X	X	X		X	X	8	14.1	16.5	30.6	12.1	14.1	26.2
Alt 12	X	X		X	X				X	X	X			X	X	7	18.0	13.1	31.1	15.4	11.2	26.6
Alt 31	X	X	X		X				X	X	X	X		X	X	8	12.2	17.3	29.5	10.5	14.8	25.3
Alt 32	X	X	X		X				X	X	X			X	X	7	16.0	13.6	29.6	13.7	11.7	25.4
Alt 63	X	X	X		X				X	X	X			X	X	7	16.0	13.7	29.7	13.7	11.7	25.4
Alt 65	X	X	X		X				X	X	X	X		X	X	8	12.5	17.1	29.6	10.7	14.7	25.4
Alt 51	X	X	X					X	X	X	X	X		X	X	8	11.1	19.0	30.1	9.5	16.3	25.8
Alt 52	X	X	X					X	X	X	X			X	X	7	14.8	15.5	30.3	12.7	13.3	26.0
Alt 35	X	X	X					X	X	X	X			X	X	7	14.8	18.1	32.9	12.7	15.5	28.2
Alt 36	X	X	X					X	X	X	X	X		X	X	8	11.1	21.4	32.5	9.5	18.3	27.8

Notes:

1. Above analysis assumes the same western (NC 903 interchange in LaGrange) and eastern (NC 41 interchange south of Cove City) termini.
2. For No build, travel time includes 40% delay due to signals on existing US 70.

3.0 DATA COLLECTION

The first step in traffic forecasting involved collection of existing traffic data in the study area. Traffic data was collected between April 14, 2015 and May 15, 2015 when the schools were in session. Data collection included 48-hr class counts and turn movement counts.

A map showing location of traffic counts is included in Appendix D.

3.1 Classification Counts

Daily volume and classification counts were collected at 21 locations in the study area. The data were collected according to NCDOT guidelines and covered at least 48-hour period during weekdays. Appendix D provides a list of locations where classification counts were collected.

3.2 Turn Movement Counts

Turn movement counts (TMC) were collected at 36 locations. TMC data were collected according to NCDOT guidelines and covered a 13-hour period during weekdays from 6 AM to 7 PM. For each of the intersections, truck volumes were counted on one approach. At two locations along US 70, only turn volumes were counted.

The intersections where turning movement counts were collected are shown in Appendix D.

3.3 Convert Class Counts to AADT

The 48 hour class counts were converted to AADT according to NCDOT Traffic Survey Group (TSG) guidelines. Computing the AADT involved the following steps:

- The 48-hour class counts were averaged over the two day period to compute the 24-hr average daily traffic (ADT) count.
- A seasonal adjustment factor was applied to the above 24-hr ADT counts to convert them to AADT. The seasonal factors were obtained from NCDOT Traffic Survey Group's Seasonal Factor spreadsheet. The count date, ATR group and seasonal adjustment factor used are shown in Appendix B – B1.
- The estimated AADTs were rounded to nearest hundreds.

3.4 Convert TMC to Quadrant Volumes

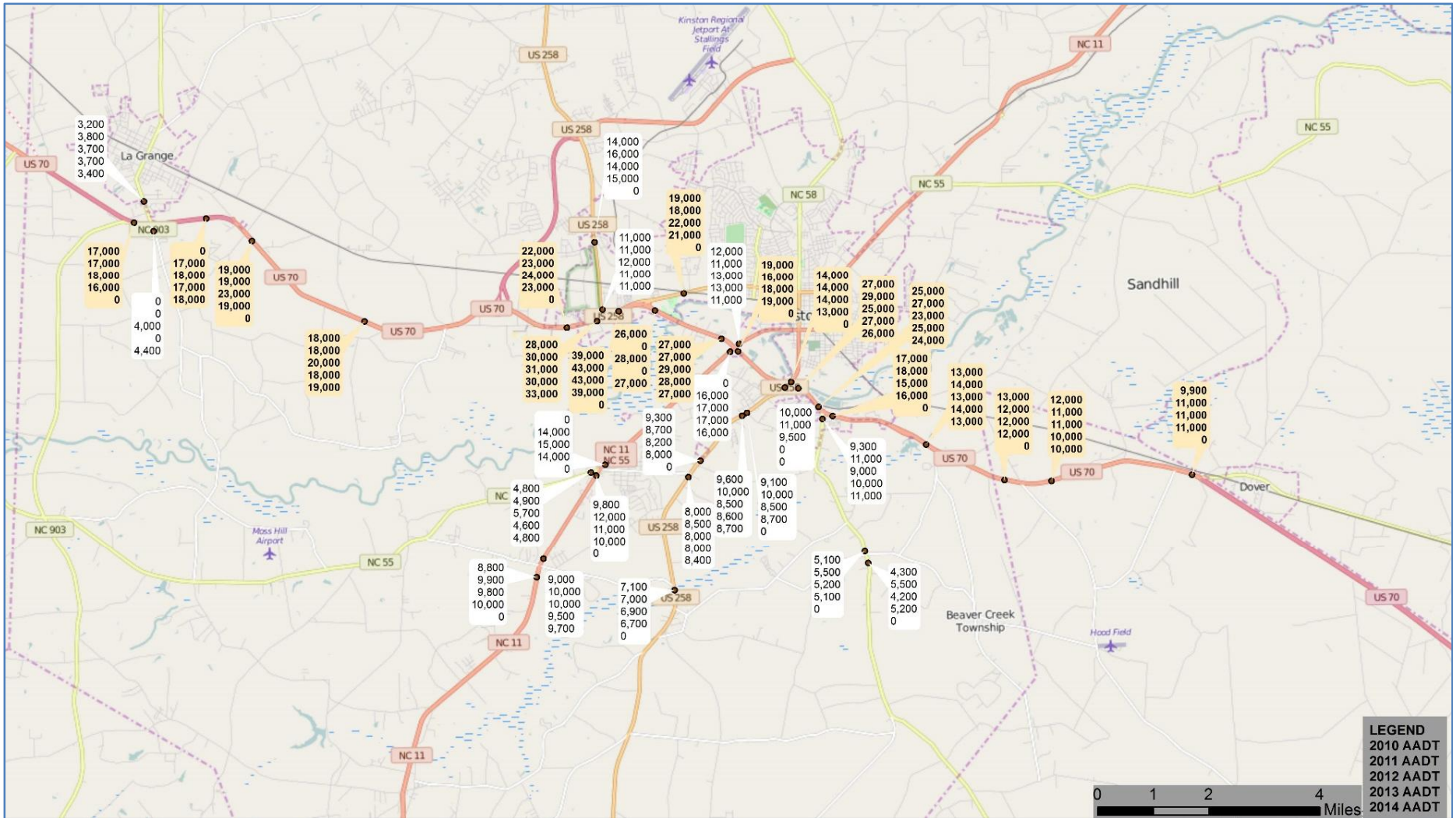
The turn movement counts were the primary source for estimating quadrant volumes at intersections. A two-step process was used to estimate quadrant volumes from turn movement counts. First, 13-hr mainline and quadrant volumes were calculated for intersections where counts were available. Second, a factor was applied to estimate 24-hr AADT equivalent volume. The factor was based on the ratio of estimated AADT from adjacent class counts to 13-hr mainline volumes from turn movement count. Note

that seasonal adjustment is already included in AADT's estimated from class count, and hence reflected in the conversion factor.

3.5 Comparison with Historic AADTs

Historic AADTs were obtained from 1994 through 2014 for key locations in the study area. AADTs are compared to counts collected for the projects, and to the base year No Build (BY NB 2015) forecast in Appendix B – Table B2. A historical AADT map for key locations showing NCDOT published AADTs from 2010 through 2014 is shown in Figure 3.

Figure 3. Historical AADT Map



4.0 TRAVEL DEMAND MODEL

This Kinston Travel Demand model was a key tool in preparing the forecasts for this project. NCDOT TPB commissioned CDM Smith to develop the Kinston Travel Demand Model based on NCDOT's Small Area Model guidelines. The final model along with model validation and technical memorandum were completed in April 2012. The model utilizes TransCAD platform and has two scenarios:

- BY 2011 - the validated Baseline Year 2011, and
- FY 2040 - Future Year 2040

A model review was conducted early in the process to identify and document key assumptions and model outputs.

4.1 Model Review

The initial step in applying the model was to examine and compare the No Build model operations and results, comparing them with previous traffic forecasts and expected land use growth rates to verify the reasonableness of the model. This required refining the No Build network, comparing to previous forecasts, and then assessing reasons for discrepancies.

4.1.1 Land Use Assumptions and Population Trend

The development of land use projections was not part of the traffic forecast process. Instead it was conducted separately as part of the planning process during which NCDOT coordinated with local planners in Lenoir County, Kinston, and with the Global TransPark to develop population and employment projections. Table 3 provides a comparison of base year (2011) and future year (2040) data from the model. Data from North Carolina State Data Center (NC SDC) shows that population has essentially been flat in the past 35 years and a similar trend is projected for the next 30 years.

As shown in Table 3, the model anticipates an annual increase in population through 2040 to be approximately 0.57 percent. This is higher than the State Data Center projections of very slow (actually negative growth) as shown in Table 4. This finding was discussed with the NCDOT planners and it was revealed that one of the basic assumptions agreed to with local planners was that the period from 2000 to 2010 has been a very low growth period, but that the 10-year period from 1990 through 2000 was more representative of growth that could occur and be maintained in the area, especially given the presence of the Global TransPark both in terms of infrastructure that is now in place and planned for future. Nevertheless, 0.57 percent increase in population is a relatively modest growth rate.

Table 3. Socio-Economic Data from Model

	Population	Employment
BY 2011	43,934	29,459
FY 2040	51,749	38,626
Change	7,815	9,167
Change (%)	18%	31%
Annual Growth Rate	0.57%	0.94%

Table 4. Population Estimates and Projections for Lenoir County

Year	Population Estimate	Year	Population Projection
1980	59,819	2015	58,780
1990	57,274	2020	58,533
2000	59,573	2025	58,282
2010	59,454	2030	58,034
2014	58,830	2035	57,786

Source: North Carolina State Data Center

4.1.2 Global TransPark Employment Assumptions

Within the study area, the Global TransPark is a key driver of traffic demand in the region. Included within the total employment estimate in Table 5 is the observation that 63 percent of the anticipated increase in employment is industrial employment focused at and near the Global TransPark. To examine the GTP growth, six zones were selected from the regional demand model that overlapped the Global TransPark boundaries. Note that in some cases, the employment may not be exclusively related to the GTP, but for estimation purposes the zones are a valid representation.

As shown in Table 5, the estimated employment growth rate in the GTP zones is 4 percent per year. This is a strong rate of growth and would drive increases in traffic for the region. This growth rate was identified by NCDOT in close consultation with GTP staff and local planners and provides a reasonable assumption for local growth.

Note, however, that these 2040 employment projections are substantially lower than estimates used in the previous 2030 Kinston Model as well as previous forecasts. The older version of the model was based on an estimation of 25,000 employees in the GTP. In contrast, the updated 2010 model anticipates 6,718 employees in the Global TransPark zones by 2040. These revised assumptions for future (2040) employment were cooperatively developed by NCDOT with local input from the Global TransPark and Kinston area planners. In the process, it was recognized and acknowledged that these projections were much lower than previous estimates.

Table 5: Total Employment for GTP TAZs in BY 2011 and FY 2040

Model TAZ (GTP)	BY 2011	FY 2040	Change	Change (%)	Annual Growth Rate
122	11	113	102	927%	8.4%
125	1,338	1,338	0	0%	0.0%
127	10	103	93	930%	8.4%
131	1	10	9	900%	8.3%
132	474	4,373	3,899	823%	8.0%
133	349	781	432	124%	2.8%
Total	2,183	6,718	4,535	208%	4.0%

4.1.3 Review of Total Trip Volumes

In evaluating the new TransCAD regional demand model, an examination of trip volumes and patterns was also reviewed to assess the applicability of the model to the Kinston Bypass forecast. This included an examination of local trips (trips beginning and ending within the model area), internal/external trips (trips having one endpoint within the model area and one external to the area), and through trips.

As shown in Table 6, the expected annual growth rate in trips is approximately 1.1 percent. This includes an annual growth rate of 0.8 percent for local trips which reflects the anticipated 0.57 percent increase in population and 0.94 percent increase in employment shown in Table 3. As per the travel demand model, the majority of traffic growth on US 70 is attributable to “Through trips” (external to external trips) rather than growth inside the model area.

Table 6. Total Trips in Base Year 2011 and No Build 2040 Models

Trip Type	2011 Model Trips	2040 Model Trips	Percent Increase	Annual Growth Rate
Local Trips	140,567	170,125	21.0%	0.8%
Internal-External	52,432	68,868	31.4%	1.2%
Through Trips	22,569	35,533	57.4%	2.0%
Total Trips	215,567	274,526	27.4%	1.1%

4.2 Base Year and No Build Network Modifications

The “No Build” alternative includes roadway improvements/ projects that have been planned or committed to by NCDOT or that can reasonably be expected to be in place by the design year. Since Kinston is a non-MPO area, a formal fiscally constrained plan has not been identified. After a review of NCDOT’s transportation plans and consultation with NCDOT staff, it was agreed that the projects identified in Table 7 would be updated for the No Build alternative. Therefore, the following roadway projects were updated in the model to develop a base year and future year No-Build roadway network.

Table 7. Base Year and Future Year Network Modifications

Project	Description	In Base Year (2011)	In Future Year (2040)
NC 148 C.F. Harvey Parkway Extension (R-2719A)	This project was completed in 2013. It extended C.F. Harvey Parkway as a four-lane freeway facility between US 70 and US 258. A section of US 70 was also realigned as part of this project	Yes (Added)	Yes (Modified)
NC 148 C.F. Harvey Parkway NE Extension (R-5703)	This project was included in the May 2015 STIP as a feasibility study. The proposed project includes construction of a new four-lane divided facility northeast of Kinston extending the existing C.F. Harvey Parkway from NC 58 to NC 11.	No (NA)	Yes (Added)
Carey Road Extension (U-3618)	This proposed four-lane local road providing an additional east-west route through western Kinston would extend Carey Road from Rouse Road westward to US 258 Hull Road. It was identified for funding as part of previous STIP (2012) but is not included in latest STIP (May 2015).	No (NA)	No (Removed)

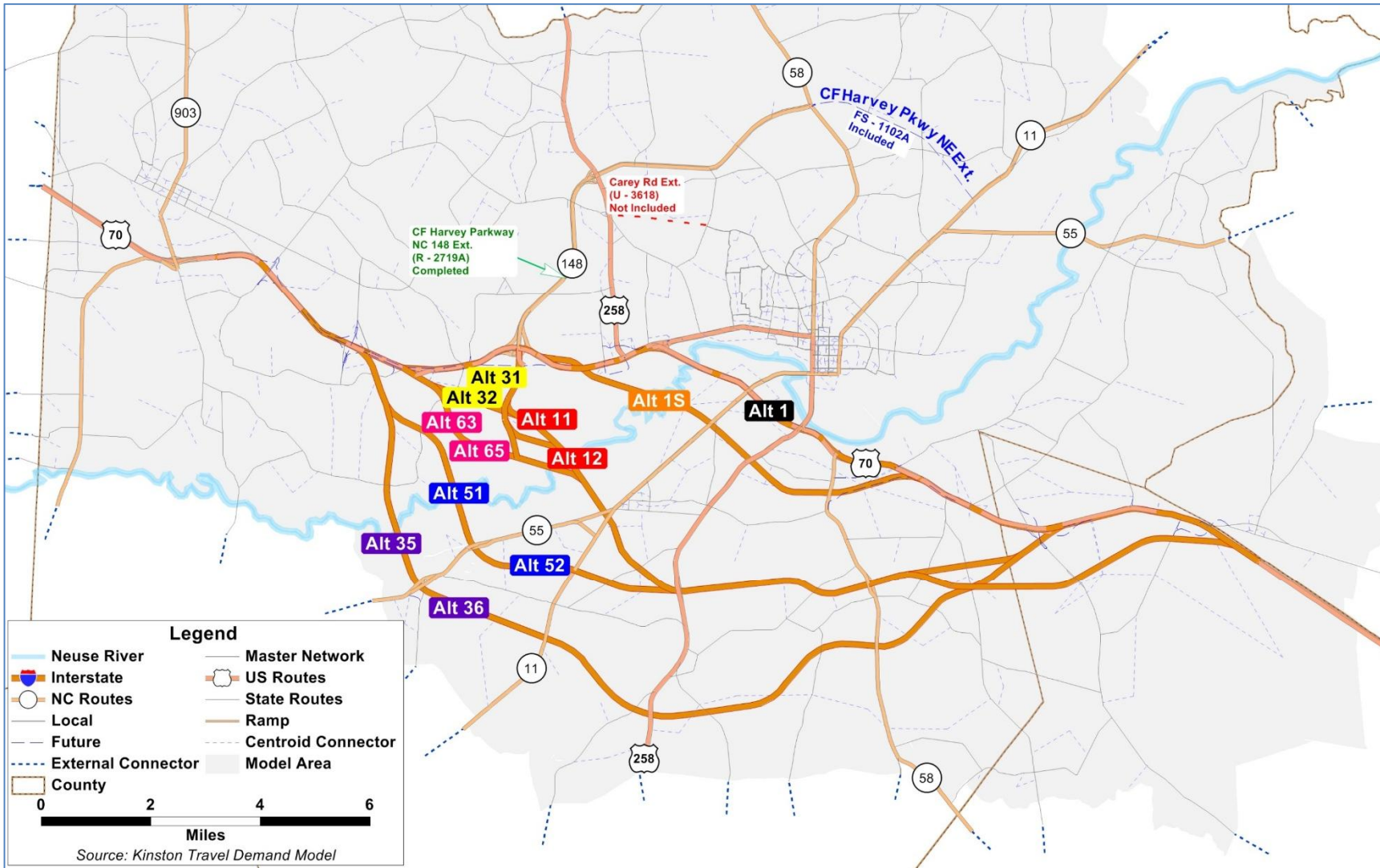
Note: Of the three projects requiring network modifications, only the R-5703 project is being added to the 2040 fiscally constrained network as an anticipated project.

4.3 Development of Build Networks

The 2040 Future Year TransCAD model was used as the starting point for the development of twelve future Build alternatives for the Kinston Bypass. Figure 4 illustrates the network coding of these alternatives on a single network. The primary assumptions used in network coding of the alternatives included:

- New alignment sections were coded at 70 mph free-flow speed.
- A bridge penalty of one-half minute was added to the new alignment bridge crossing at the Neuse River. This was done in order to be consistent with base year and future year No Build model where a bridge penalty is being used at all links crossing Neuse River.
- Existing sections of US 70 that were to be utilized as part of a Bypass alternative were assumed to be converted to 70 mph freeway sections. This includes the sections of US 70 between the US 70/NC 903 interchange to the western Bypass takeoff point as well as the section of US 70 from the eastern Bypass merge point back with US 70 to the US 70/ NC 41 interchange.
- For the sections of US 70 being upgraded to a 70 mph freeway, interchanges were added as specified for each roadway. This included consolidating of other local roads and centroid connectors to remove access directly to US 70 or the C.F. Harvey Parkway.
- The alignments were coded as provided by the NCDOT's Project Development and Environmental Analysis (PDEA) branch in the forecast request as shown in Figure 2.
- Each bypass network was modeled separately for traffic assignments in 2011 and 2040. The 2011 model results were adjusted to prepare the 2015 existing forecasts.

Figure 4. TransCAD Model Network with Bypass Alternatives



5.0 DEVELOPMENT OF PROJECT LEVEL TRAFFIC FORECASTS

The study required development of project level traffic forecasts with balanced daily traffic turning movements per NCDOT standards. Traffic forecasts were developed for No Build conditions and twelve Build alternatives for Base Year 2015 and Horizon Year 2040.

A key component of developing the forecasts was utilizing the TransCAD model and the model forecasted traffic volumes as described in Section 4.0. In addition to the travel demand model output, other inputs were used including previously developed forecasts, traffic data collected for the project, and engineering judgment.

Beyond the review of the model results for estimating average daily traffic, other critical steps include the development of balanced turn movement and the estimation of traffic factors (including design hour volume percentages, directional splits, and truck percentages). The following sections examine these elements and provide additional insights into the specific forecasts for each alternative.

5.1 Development of Mainline Volumes

Mainline volumes were estimated for the alternatives using a combination of methods. A key input into the process, however, was utilizing the travel demand models identified in Section 4.0. The overall 2040 trip table was assigned to the networks devised for each alternative. The model results were compiled and compared to observe both similarities and differences between the alternatives. Variations in the model results were reviewed and analyzed in terms of the expected differences in travel patterns including alternative routes for trips to access various locations in Kinston north of US 70.

An initial review of screenlines was conducted to verify overall trip assignment was reasonable between alternatives. This included detailed review of the diversion from the existing US 70 to the proposed Bypass alternatives and verification that the general trend was that the closer and shorter Bypass alternatives diverted higher volumes from US 70 to the new Bypass. Section 5.5 documents the screen lines from the final adjusted forecasts.

Using the base volumes, turn movement balancing was conducted as outlined in Section 5.2. The balancing was adjusted to provide consistency between alternatives on both the existing US 70 and the proposed Bypass alignments.

5.2 Development of Turn Movements

The traffic forecasts developed for this project consisted of daily traffic volumes and turn movements for the roadway network. Specifically, turn movements have been developed at multiple intersections along the existing US 70 corridor and on the proposed bypass alternatives.

The turn movements were developed by first reviewing the daily volume projections from the TransCAD model along US 70, the critical side roads on US 70, and the Bypass alternatives. These volumes were

utilized as a starting point for balancing turn movements. Turn movements were estimated utilizing an iterative process requiring multiple steps.

5.3 No Build Alternative

For the No-Build alternative, the existing turn movements served as the primary source of data. Using the growth rates predicted for each roadway link from the travel demand model between 2012 and 2040, future turn movements were estimated at each intersection. The next step required balancing of the turn movements to verify that the traffic entering and exiting the intersection matched the turn movements. In some locations, the daily traffic on roadway sections between two intersections was adjusted so that traffic volumes would be balanced between intersections. This typically occurred when a driveway, roadway, or intersection caused a change in traffic volumes between two turn movement locations.

5.4 Build Alternatives

For the 2040 Build alternatives, additional steps were used in estimating turn movements. Instead of using the existing counts as a starting point, the 2040 No-Build turn movements were used as a base. A spreadsheet was utilized to iteratively adjust the volumes of turn movements as well as intersection approaches. In general, the provision of Bypass alternatives, reduced the traffic volumes on US 70 through the study area.

For each of the Build alternatives, a freeway type facility is planned along US 70 between NC 903 on the west and NC 41 on the east. Alternative 1 (Widen Existing) assumes that existing at-grade intersections will be modified and/or closed from the existing configuration on US 70. The revised access patterns were examined to estimate future turn movement volumes using existing data as a base, but taking into account the rerouting of trips based on the proposed interchange access points.

For the southern bypass alternatives on new alignment, the portion of the route along existing US 70 (i.e. the eastern and western approaches to the new alignment sections) also is planned to have freeway type access only at interchanges. Therefore, similar to Alternative 1, future turn movements were estimated recognizing that the existing access pattern would be changed resulting in diversions and rerouting of trips from the existing travel patterns.

In addition to the existing roadway sections, traffic volumes and turn movements were assigned to each Bypass alternative. In general, the TransCAD assignment was used to assign daily traffic volumes to the roadway links. More detailed refinements were applied utilizing data from existing turn movement counts as appropriate. Turn movements were estimated and balanced at the tie-in points of the proposed Bypass alignments with US 70.

Once intersections were balanced between themselves for each alternative, an additional step required comparing turn movements for each alternative to each other. In several cases, the bypass alternatives tested were similar and would be expected to have similar traffic patterns in some areas of the network.

As a final step, a quality check was performed to verify that the intersections remained balanced between alternatives.

5.5 Screenline Comparison of Alternative Forecasts

A check for each of the alternatives was performed to verify whether total trips across screenlines were consistent between alternatives and that no Alternative forecast had either reduced or increased the total traffic volumes inadvertently. Note that due to intricacies of the roadway network it is anticipated that some volumes differences (less than 10 percent) could occur between alternatives. In performing the screenline analysis, the forecast volumes were identified for three separate screenlines as shown in Figure 5. Table 8 summarizes the screenline analysis of the 2040 alternative forecasts.

- Screenline A – Measured east-west flow generally following the Neuse river boundary on western side.
- Screenline B – Measured east-west flow on the eastern side of the model area.
- Screenline C – Measured north-south flow between C.F. Harvey Parkway and NC 58 north of existing US 70.

A review of the screenlines indicates the following:

- At all three screenlines, volumes are generally consistent across all alternatives and within +/- 10% of No Build.
- At screenlines A and B, total volume increases compared to No Build with the bypass extending outward as relatively higher local traffic utilize the bypass.
- Build Alternatives with direct connection to NC 148 (CF Harvey Parkway) have higher volumes than No Build for Screenline C.

Overall, the screenline analysis provides a solid check that the 2040 traffic forecast is applicable for a comparison of the alternatives.

Figure 5. Screenlines for Comparing Forecasts

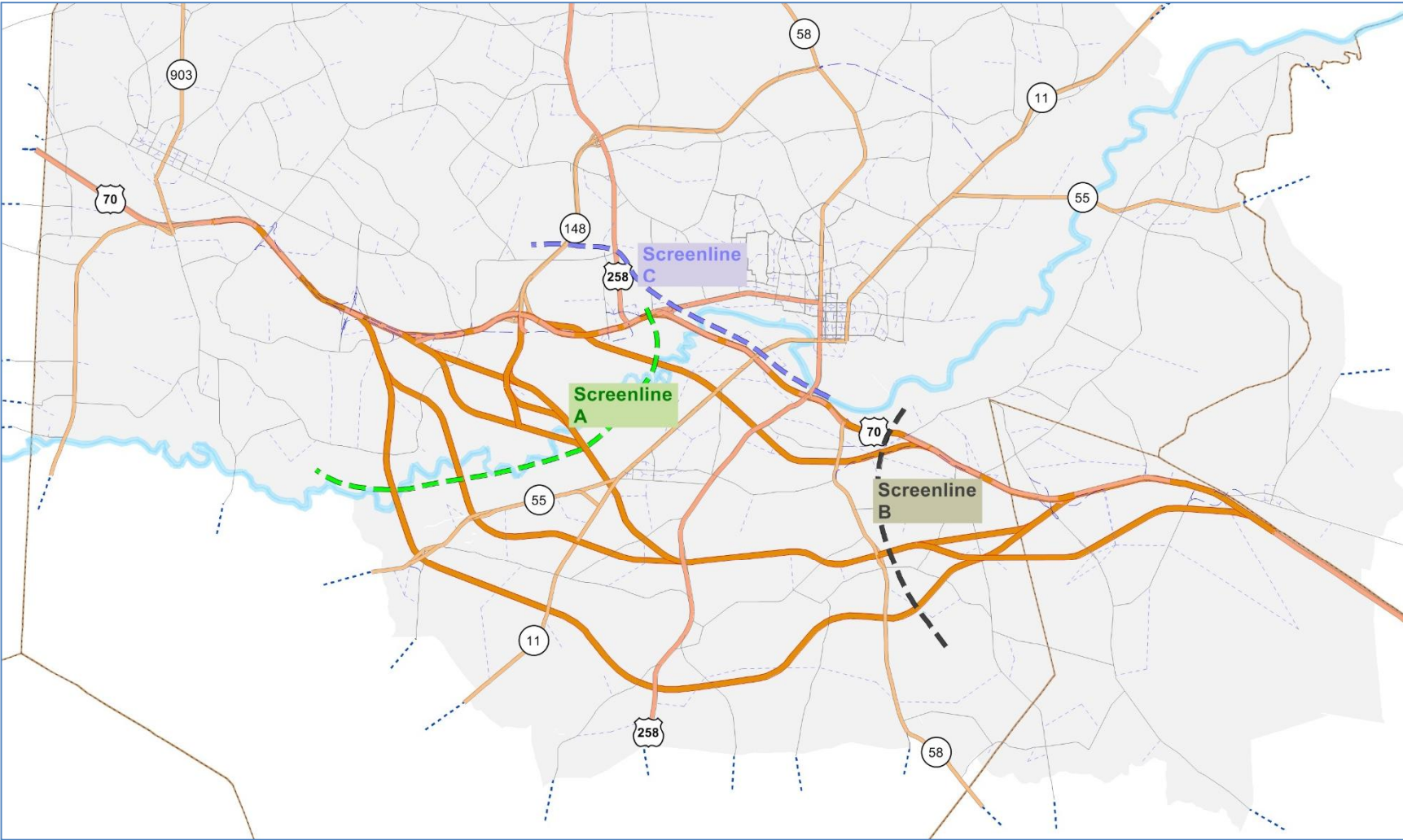


Table 8. Screenline Analysis of 2040 Forecasts

ALTERNATIVE	SCREENLINE A				SCREENLINE B				SCREENLINE C						
	US 70	Bypass	Total	Increase from No Build	US 70	Bypass	Total	Increase from No Build	NC 148	US 258	US 70 Bus	NC 11-55	NC 58	Total	Change from No Build
No-Build	49,400	-	49,400	-	29,200	-	29,200	-	9,400	13,200	22,400	14,200	18,800	78,000	-
Alt 1	47,000	-	50,000 ¹	1%	29,000	-	31,000 ¹	6%	8,600	14,400	23,800	15,000	19,200	81,000	4%
Alt S1 (Var S5)	22,800	29,000	51,800	5%	13,000	19,000	32,000	10%	14,400	8,200	18,000	17,200	20,000	77,800	0%
Alt S1 (Var P4)	21,800	30,600	52,400	6%	2,500	27,200	29,700	2%	14,400	8,400	18,000	17,200	20,000	78,000	0%
Alt 12	28,200	24,800	53,000	7%	14,800	16,000	30,800	5%	13,800	8,400	22,000	14,000	18,800	77,000	-1%
Alt 11	28,200	24,800	53,000	7%	14,800	16,000	30,800	5%	13,800	8,400	22,000	14,000	18,800	77,000	-1%
Alt 32	28,600	24,200	52,800	7%	14,800	16,200	31,000	6%	13,600	8,800	22,000	14,000	18,800	77,200	-1%
Alt 31	28,600	24,200	52,800	7%	14,800	16,200	31,000	6%	13,600	8,800	22,000	14,000	18,800	77,200	-1%
Alt 63	27,800	25,600	53,400	8%	14,800	16,200	31,000	6%	13,600	8,600	22,000	14,000	18,800	77,000	-1%
Alt 65	27,800	25,600	53,400	8%	14,800	16,200	31,000	6%	13,600	8,600	22,000	14,000	18,800	77,000	-1%
Alt 52	32,400	18,800	51,200	4%	14,800	16,200	31,000	6%	10,000	10,600	22,000	14,000	19,000	75,600	-3%
Alt 51	32,400	18,800	51,200	4%	14,800	16,200	31,000	6%	10,000	10,600	22,000	14,000	19,000	75,600	-3%
Alt 35	37,400	13,400	50,800	3%	19,800	10,400	30,200	3%	10,000	11,000	22,000	14,000	19,000	76,000	-3%
Alt 36	37,400	13,600	51,000	3%	19,800	11,000	30,800	5%	10,000	11,000	22,000	14,000	19,000	76,000	-3%

Notes:

1: Screenline includes traffic on service road parallel to US 70.

6.0 TRAFFIC FACTORS

As part of the evaluation of future traffic projections, analysis of existing traffic factors and characteristics were determined and changes in the future were estimated. Specific data which were estimated for this analysis include design hour percentage (K), directional splits (D), and truck percentages (T). These factors were not derived from the TransCAD demand model.

Utilizing the existing traffic counts described in Section 3.1 and 3.2, the K, D, and T factors for each intersection were evaluated. In reporting the data for each alternative, the factors were mapped on the same sheet as the projected turn movements for each alternative. The factors are summarized using the standard NCDOT forecasting tables in Appendix B.

As part of the design year traffic forecasts, traffic factors were developed for directional splits (D), design hour volume percentages (DHV), and truck percentages. These factors are identified in the traffic forecasts shown in Appendix A. Traffic factors were separately estimated for specific roadways including US 70, the C.F. Harvey Parkway, the proposed Bypass alignments, and cross roads.

The primary sources of data for determining the traffic factors was the existing 2008 traffic counts, additional NCDOT counts, and recently completed NCDOT forecasts in the region (FS-0802, U-3618, and R-2719A). In addition, NCDOT's Traffic Forecast Utility spreadsheet was used to verify that the directional splits and DHV were valid for the peak hour intersection flows.

6.1 Directional Splits (D)

The directional splits were estimated based upon existing count data, an evaluation of the impact that bypass alignments may have on travel patterns, recently completed NCDOT forecasts, and engineering judgment. The observed and predicted direction splits were compared for specific roadway links as presented in Table 9.

In general, it was determined that the peak hour directional split was 55-45 on US 70 west and east of Kinston with a 60-40 split applicable on the section between US 70 Business and NC 58. Other local roadways had varying splits with a peak directional percentage between 60 and 65 percent on most roadways. In general, the existing peak hour data was used to identify existing directional distributions and then adjusted based on the specific Bypass alternative. In general, the Bypass alternatives were estimated to have a 55-45 directional split.

6.2 Design Hour Volume Percentage (K)

Traffic data was analyzed to identify the percentage of daily traffic occurring during the peak hour (K). These values were compared with the estimate of design hour volume percentage in other NCDOT forecasts. The comparison of the Design Hour Volume (DHV) percentage is illustrated in Table 9. The forecast percentage was adjusted slightly using engineering judgment and rounding.

In general, it was estimated that the future DHV would be approximately 9 percent on US 70 and either 9 or 10 percent on the bypass alignments. In general, the crossroads with US 70 were estimated to have a 9 percent DHV. Also note that for other local and rural roadways in the study area, the DHV percentage varied between 8 and 10 percent based primarily on existing data.

6.3 Truck Percentages

Truck percentages were estimated based upon existing turning movements, classification counts, additional NCDOT classification data collected near the project study area, and past NCDOT forecasts. The truck percentages were estimated separately for dual trucks (buses and single unit trucks) and the larger TTST (tractor-trailer and semi-trailer) trucks. The truck percentages are summarized in Table 9.

In addition, truck percentages were tested to verify similar assumptions for total through trucks and GTP related truck trips between alternatives. In some cases, this resulted in fluctuating truck percentages along the bypass alignments with high truck percentages on low volume links and lower percentages on high volume links. This was estimated to maintain a similar volume of through truck volumes along the bypass despite increases in local traffic on specific segments.

Overall, the base peak hour truck percentages on US 70 were estimated as utilizing the existing classification counts collected along US 70. As shown in Appendix B – B5, the data has a wide range for the US 70 truck counts, but in general the truck percentages are higher on the west and east and lower within Kinston where there is a higher volume of local trips. In general, two primary sources of heavy truck volume were assumed: trucks accessing the GTP along C.F. Harvey Parkway to the north as well as through trucks on US 70 which were assumed to divert to the bypass alignment. On the bypass alignments, the truck percentage varied, often with a higher truck percentage on the lowest volume links reflecting through trucks on the bypass alignment.

Truck percentage on side streets typically reflected existing counts, particularly for the roadways serving the downtown area. Note that the truck percentage for the C.F. Harvey Parkway was increased from existing data to reflect the anticipated buildout scenario with extensive truck traffic activity (in addition to rail and air traffic) serving the GTP.

Note that assumed definitions for dual and TTST trucks followed the current NCDOT truck classification scheme. Specifically, duals were assumed to match Classes 4 through 7 and TTST were assumed to match Classes 8 through 13 of the Federal vehicle classification scheme.

Table 9. Traffic Design Factors – D, K and HV at Key Locations

Location	D – Directional Distribution		K – Peak Hour Factor		Heavy Vehicles – (Dual / TTST)	
	Class Count	Selected BY NB Value	Class Count	Selected BY NB Value	Class Count	Selected BY NB Value
US 70 - West of SR 1334 (Barwick Station Rd)	55%	55%	8.0%	9%	4.3 / 8.0	4 / 8
US 70 - West of Pinelawn Cemetery Dr	54%	50%	8.1%	9%	3.8 / 6.5	4 / 6
US 70 - West of US 70 Bus	51%	55%	7.6%	9%	3.2 / 4.9	4 / 5
US 70 - East of US 70 Bus	53%	55%	8.0%	9%	3.6 / 5.2	5 / 6
US 70 - East of Lenoir CC	53%	55%	7.6%	8%	9.1 / 9.0	6 / 9
US 70 - East of SR 1313 (Burkett Road)	50%	55%	8.0%	8%	7.0 / 12.0	7 / 12
C.F. Harvey Parkway - North of US 70	61%	60%	9.7%	9%	4.8 / 8.4	5 / 9
NC 11/55 - North of NC 11 and 55 Merge	61%	65%	8.0%	10%	5.6 / 8.1	6 / 7
US 258 - South of SR 1149 (Joe Nunn Road)	64%	60%	8.8%	9%	7.4 / 5.3	8 / 5
NC 58 - South of SR 1900 (Collier Loftin Road)	73%	65%	8.9%	9%	3.2 / 4.2	4 / 4

7.0 TRAFFIC FORECASTS

The results of the traffic forecasts are shown in Appendix A – Traffic Forecasts. The traffic forecast sheets include daily traffic volumes on roadway links, turn movement volumes, and other traffic factors. The trip assignment from the TransCAD travel demand model was a critical first step in estimating future volumes on roadways, but additional steps were required to verify and balance the counts.

7.1 No Build Alternatives

Results of No Build Alternatives are shown in Appendix A. A review and comparison of the existing and future No-Build projections is consistent with anticipated patterns. A steady increase in traffic volumes is anticipated throughout the area and the major through movements increase at a higher percentage than turn movements along the major corridors.

7.2 Build Alternatives

Year 2015 and year 2040 traffic forecast sheets are also included in Appendix A for each of the Build alternatives.

A comparison of the alternatives indicates multiple trends including:

- Each of the bypass alternatives divert traffic from US 70. By 2040, the bypass alternatives result in diversions between 12,000 vpd and 30,000 vpd.
- The Improve Existing US 70 alternative results in higher volumes of traffic on US 70 due to an increase in speed on some sections to 70 mph and the elimination of traffic signals. In isolated sections, however, lower volumes are noted due to the closure of specific access points and the inclusion of frontage roads for local access. However, since there is no major alternative to US 70, the model results suggest that trips from other facilities would not substantially divert to use the improved US 70.
- The bypass alternatives are expected to carry between 20,000 and 30,000 vehicles per day (vpd) on the western section (west of US 58) and between 10,000 and 30,000 vpd on the eastern section by the year 2040. A significant portion of this traffic is being diverted from US 70. In these scenarios, the C.F. Harvey Parkway will serve as the primary access to the GTP from the existing US 70.

Note that volumes noted above are approximations. For specifics related to each alternative, refer to the traffic forecasts shown in Appendix A.

8.0 TRAFFIC ESTIMATES FOR SHALLOW BYPASS

As noted in Section 2.3.1, two forecasts were developed for the Alternative S-1 Shallow Bypass. Both alternatives assumed that interchanges are located at all practical locations on the Shallow Bypass alignment. Recognizing that fewer interchanges (or a prioritized phasing of interchanges) may be considered, a series of AADT traffic estimates are also prepared and documented in Appendix C.

Six traffic estimates were developed as shown in Table 10. These estimates examine variations in AADT for the Shallow Bypass alternatives with fewer interchanges. It is intended that these estimates can provide additional insights into identifying preferred locations for interchanges on the Shallow Bypass alignment. It is recognized that due to the shorter length of the Shallow Bypass, interchange access may be restricted by either traffic operations related to ramp spacing between interchanges as well as overlap between potential access routes for traffic to/from downtown Kinston.

Table 10. Scenarios for AADT Estimates with Shallow Bypass

Alternative S1 Shallow Bypass		Interchange Locations					Type of Forecast	2040 AADT on Western Link of Shallow Bypass (vpd)
Interchange Variation	# of Interchanges	A US 70 West	B NC 11/55	C US 258	D NC 58	E US 70 East		
S Scenarios – Shallow Bypass with Full Access Interchange at US 70 East								
S5 - ABCDE	5	X	X	X	X	X	Formal Forecast in Appendix A	29,000
S4-ABDE	4	X	X		X	X	Estimate in Appendix C	28,500
S4- ABCE	4	X	X	X		X	Estimate in Appendix C	28,800
S3- ABE	3	X	X			X	Estimate in Appendix C	27,600
S2- AB	2	X				X	Estimate in Appendix C	17,000
P Scenarios – Shallow Bypass with No Access at US 70 East & Realigned US 70 into NC 58								
P4 – ABCD	4	X	X	X	X		Formal Forecast in Appendix A	30,600
P3 – ABD	3	X	X		X		Estimate in Appendix C	29,000
P2 - AD	2	X			X		Estimate in Appendix C	19,400

As part of the estimation process, a screenline analysis was conducted for each scenario. Multiple screenlines were examined, with the two primary screenlines summarized in Table 11. As shown, the screenlines for the Shallow Bypass alternatives with fewer interchanges are within 5 percent of the formal forecasts for the S5-ABCDE and P4-ABCD alternatives.

Table 11. Screenline Summary for Shallow Bypass Estimates

Roadway	No Build	S5-ABCDE	S4-ABDE	S4-ABCE	S3-ABE	S2-AE	P4-ABCD	P3-ABD	P2-AD
Western Screenline – Near Mt. Vernon Park Drive									
US 70	490	222	224	222	234	328	212	220	336
Bypass	0	290	286	288	276	170	306	290	194
Total	490	512	510	510	510	498	518	510	530
Percent of Forecast			100%	100%	100%	97%		98%	102%
Eastern Screenline – Near Meadowbrook Drive									
US 70	372	168	170	190	192	202	148	164	182
Bypass	0	200	198	178	176	170	216	202	194
Total	372	368	368	368	368	372	364	366	376
Percent of Forecast			100%	100%	100%	101%		101%	103%

Notes:

1. AADT volume shown in 100s to match the estimate format. (eg., 494 refers to 49,400 vpd)
2. Full forecasts for S5 and P4 Shallow Bypass alternatives are shown in red text.

Review of the Appendix E traffic estimates yielded the following observations:

- In general, the greater the number of interchanges, the higher the traffic volumes on the Shallow Bypass alignment. For the S scenarios, the AADT volume on the western segment range from 17,000 vpd with 2 interchanges (i.e. the eastern and western tie-ins) to 29,000 vpd with 5 interchanges. For the P scenarios, the AADT volume on the western segment range from 19,400 vpd with 2 interchanges (i.e. the eastern and western tie-ins) to 30,600 vpd with 4 interchanges.
- The P scenarios are anticipated to carry slightly higher volumes than the S scenarios. The primary reason is that trips between the western termini and the commercial area just west of US 258 tend to stay on the existing US 70 in the S scenarios (i.e. with US 70 existing remaining in place), but use the Shallow Bypass in the P scenarios (i.e. with the existing US 70 diverted onto NC 58).
- Of the interior interchange locations (i.e. B, C, and D), an interchange at the NC 11/55 connection (i.e. B) results in the highest volume of vehicles on the proposed bypass. An interchange at this

location serves the highest volume of vehicles. The primary movement for vehicles using this interchange are to/from the west.

- For the S scenarios (i.e. with an eastern tie-in at US 70), both the US 258 (C) and NC 58 (D) interchange locations have a minimal effect with the overall AADT only increasing by approximately 1,200 vpd.
- For the P scenarios, the (D) NC 58 interchange location is required for connectivity. It also serves a higher volume of vehicles since traffic between downtown Kinston and US 70 to the east must use the NC 58 interchange. As with the S scenarios, the US 258 (C) interchange location has a minimal effect with the overall AADT only increasing by approximately 1,200 vpd.
- On the estimate for each scenario, the anticipated AADT volumes are illustrated for the existing US 70 section. In general, the higher the volumes on the Shallow Bypass, the lower the volumes are on the existing US 70. A review of the estimates indicates that the lowest future AADT volumes on the existing US 70 will occur on the section between NC 11 and the US 258 intersections. At this location on the existing US 70, the AADT volumes vary from 7,800 vpd to 11,200 vpd compared with 29,600 vpd in the 2040 No Build.

Note that these findings only present traffic forecasting results. Differences in congestion relief, land use impacts, natural resource impacts, and construction costs all must be examined in determining the preferred locations, number, and type of interchanges.

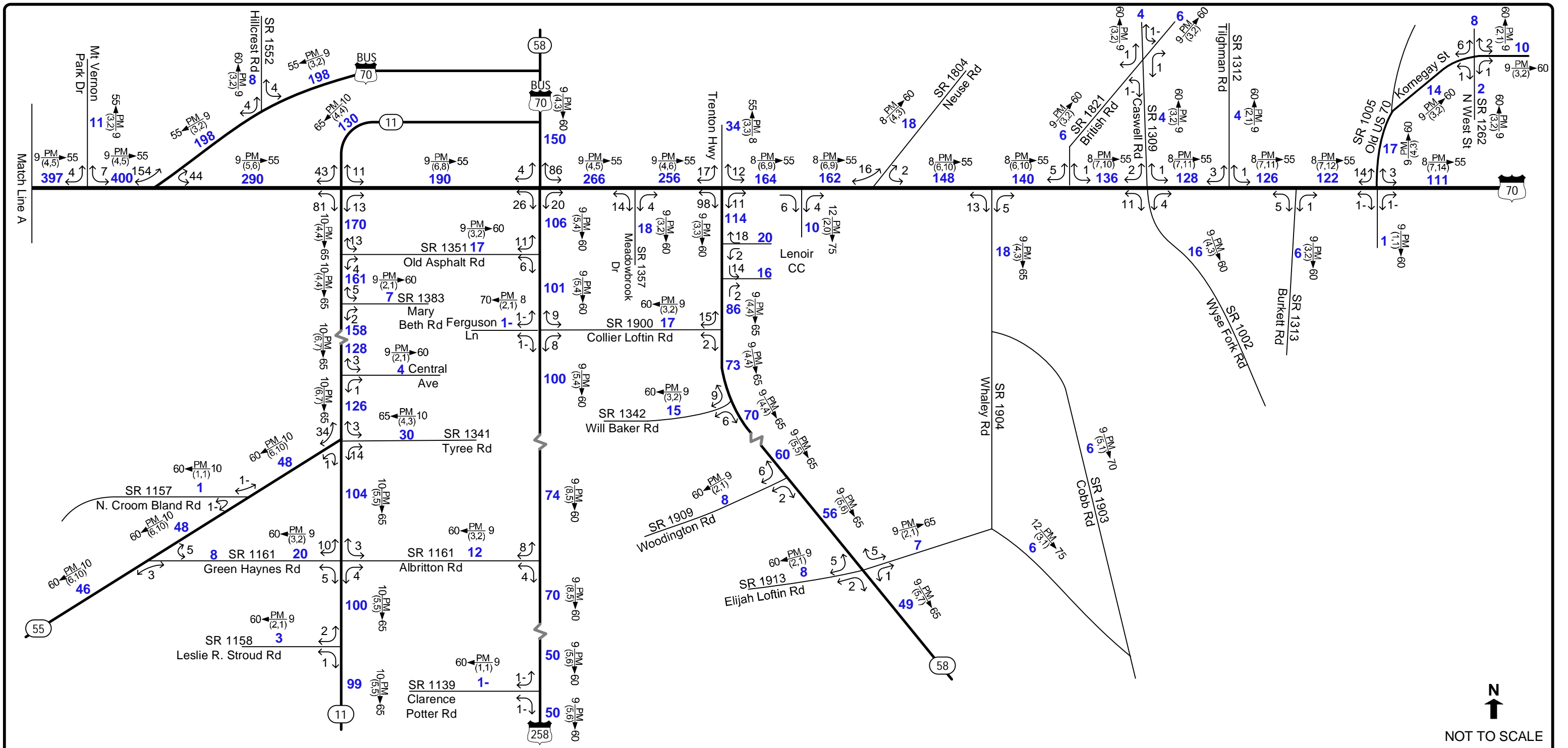
APPENDIX A

TRAFFIC FORECASTS

- A1 – Scenario 1 – 2015 Base Year Existing Conditions
- A2 – Scenario 2 – 2015 Base Year Build Alternative 1 (Upgrade US 70)
- A3 – Scenario 3A - 2015 Base Year Build Alternative 1S-S5 (Shallow Bypass with 5 interchanges)
- A4 – Scenario 3B – 2015 Base Year Build Alternative 1S-P4 (Shallow Bypass with 4 interchanges & rerouting of existing US 17 to NC 58)
- A5 – Scenario 4 – 2015 Base Year Build Alternative 11
- A6 – Scenario 5 – 2015 Base Year Build Alternative 12
- A7 – Scenario 6 – 2015 Base Year Build Alternative 31
- A8 – Scenario 7 – 2015 Base Year Build Alternative 32
- A9 – Scenario 8 – 2015 Base Year Build Alternative 35
- A10 – Scenario 9 – 2015 Base Year Build Alternative 36
- A11 – Scenario 10 – 2015 Base Year Build Alternative 51
- A12 – Scenario 11 – 2015 Base Year Build Alternative 52
- A13 – Scenario 12 – 2015 Base Year Build Alternative 63
- A14 – Scenario 13 – 2015 Base Year Build Alternative 65
- A15 – Scenario 14 – 2040 Horizon Year No Build
- A16 – Scenario 15 – 2040 Horizon Year Build Alternative 1 (Upgrade US 70)
- A17 – Scenario 16A - 2040 Horizon Year Build Alternative 1S-S5 (Shallow Bypass with 5 interchanges)
- A18 – Scenario 16B – 2040 Horizon Year Build Alternative 1S-P4 (Shallow Bypass with 4 interchanges & rerouting of existing US 17 to NC 58)
- A19 – Scenario 17 – 2040 Horizon Year Build Alternative 11
- A20 – Scenario 18 – 2040 Horizon Year Build Alternative 12
- A21 – Scenario 19 – 2040 Horizon Year Build Alternative 31
- A22 – Scenario 20 – 2040 Horizon Year Build Alternative 32
- A23 – Scenario 21 – 2040 Horizon Year Build Alternative 35
- A24 – Scenario 22 – 2040 Horizon Year Build Alternative 36
- A25 – Scenario 23 – 2040 Horizon Year Build Alternative 51
- A26 – Scenario 24 – 2040 Horizon Year Build Alternative 52
- A27 – Scenario 25 – 2040 Horizon Year Build Alternative 63
- A28 – Scenario 26 – 2040 Horizon Year Build Alternative 65

APPENDIX A

2015 Scenarios



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NOT TO SCALE



2015

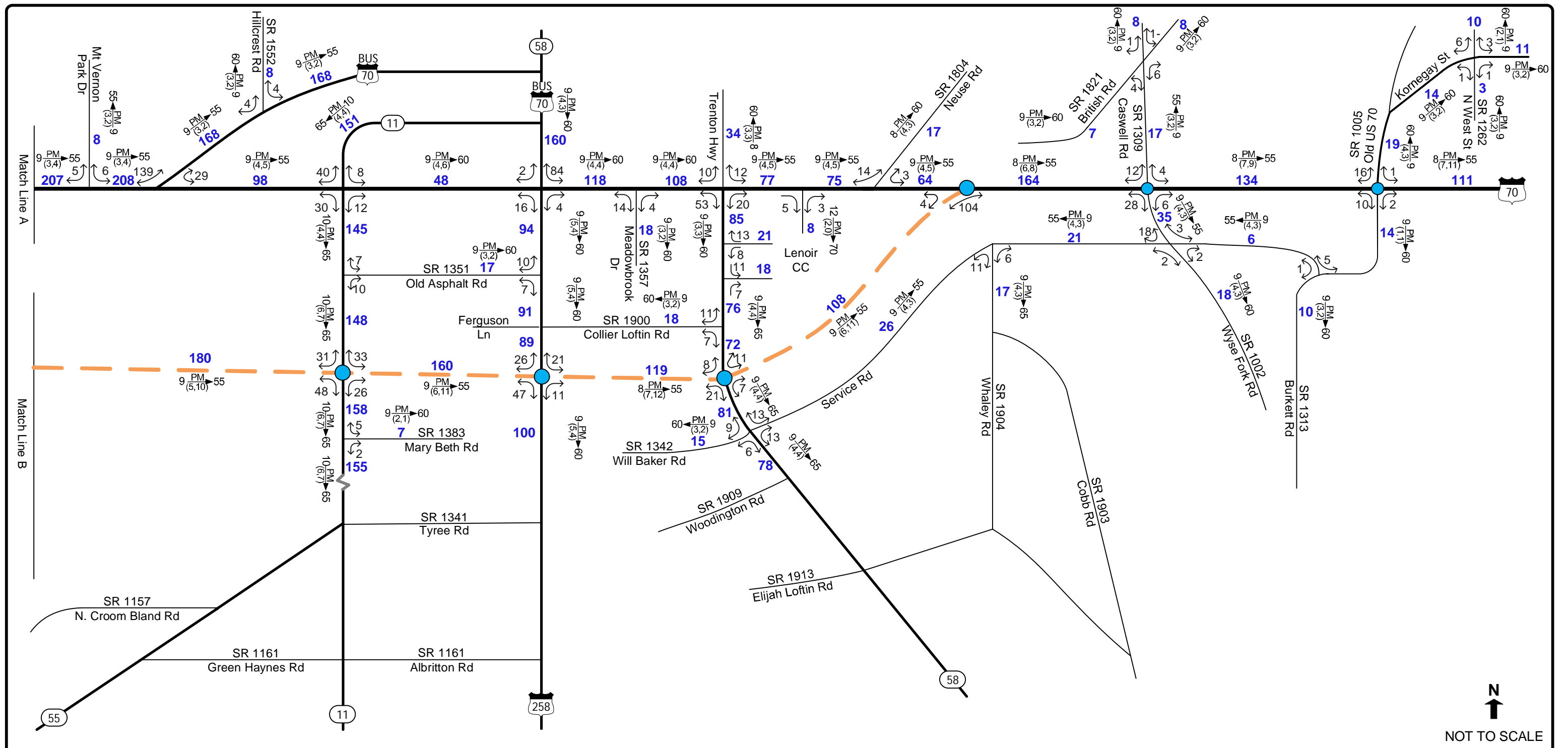
AVERAGE ANNUAL DAILY TRAFFIC

Scenario 1
Base Year

EXISTING CONDITIONS
SHEET 2 OF 2

LEGEND

<p>### Vehicles Per Day (VPD) in 100s</p> <p>1- Less than 50 VPD</p> <p>X Movement Prohibited</p> <p>— Roadway</p> <p>● Future Interchange</p> <p>● Existing Interchange</p>	<p style="text-align: center;">K PM D (d, t)</p> <p>K Design Hour Volume Percentage</p> <p>PM PM Peak Period</p> <p>D Peak Hour Directional Split</p> <p>→ Indicates Direction of D</p> <p>(d,t) Duals, TT-STs (%)</p>	<p>TIP: R-2553</p> <p>WBS: 34460</p> <p>COUNTY: Lenoir</p> <p>DIVISION: 2</p> <p>DATE: November 7, 2016</p> <p>PREPARED BY: Parsons Brinckerhoff</p> <p>LOCATION: US 70 from west of NC 903 in La Grange to east of Old US 70 in Dover</p> <p>PROJECT: US 70 Kinston Bypass</p>
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2015

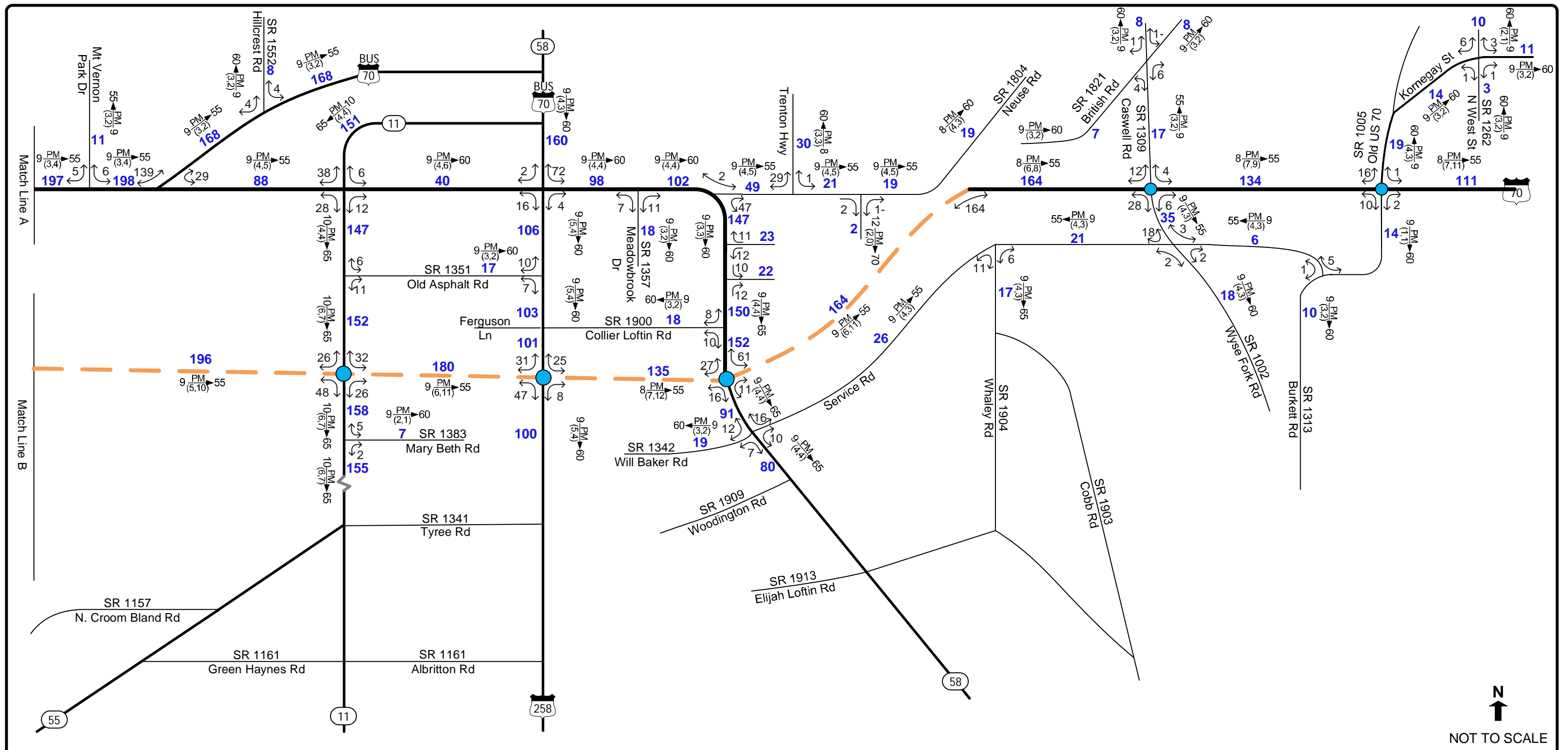
AVERAGE ANNUAL
DAILY TRAFFIC

Scenario 3A
Base Year

BUILD ALTERNATIVE 1S-S5
(Shallow Bypass) SHEET 2 OF 2

LEGEND

<p>### Vehicles Per Day (VPD) in 100s</p> <p>1- Less than 50 VPD</p> <p>X Movement Prohibited</p> <p>— Roadway</p> <p>● Future Interchange</p> <p>● Existing Interchange</p>	<p style="text-align: center;">K PM → D (d, t)</p> <p>K Design Hour Volume Percentage</p> <p>PM PM Peak Period</p> <p>D Peak Hour Directional Split</p> <p>→ Indicates Direction of D</p> <p>(d,t) Duals, TT-STs (%)</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">TIP: R-2553</td> <td style="padding: 2px;">WBS: 34460</td> </tr> <tr> <td style="padding: 2px;">COUNTY: Lenoir</td> <td style="padding: 2px;">DIVISION: 2</td> </tr> <tr> <td colspan="2" style="padding: 2px;">DATE: November 7, 2016</td> </tr> <tr> <td colspan="2" style="padding: 2px;">PREPARED BY: Parsons Brinckerhoff</td> </tr> <tr> <td colspan="2" style="padding: 2px;">LOCATION: US 70 from west of NC 903 in La Grange to east of Old US 70 in Dover</td> </tr> <tr> <td colspan="2" style="padding: 2px;">PROJECT: US 70 Kinston Bypass</td> </tr> </table>	TIP: R-2553	WBS: 34460	COUNTY: Lenoir	DIVISION: 2	DATE: November 7, 2016		PREPARED BY: Parsons Brinckerhoff		LOCATION: US 70 from west of NC 903 in La Grange to east of Old US 70 in Dover		PROJECT: US 70 Kinston Bypass	
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COUNTY: Lenoir	DIVISION: 2													
DATE: November 7, 2016														
PREPARED BY: Parsons Brinckerhoff														
LOCATION: US 70 from west of NC 903 in La Grange to east of Old US 70 in Dover														
PROJECT: US 70 Kinston Bypass														



2015

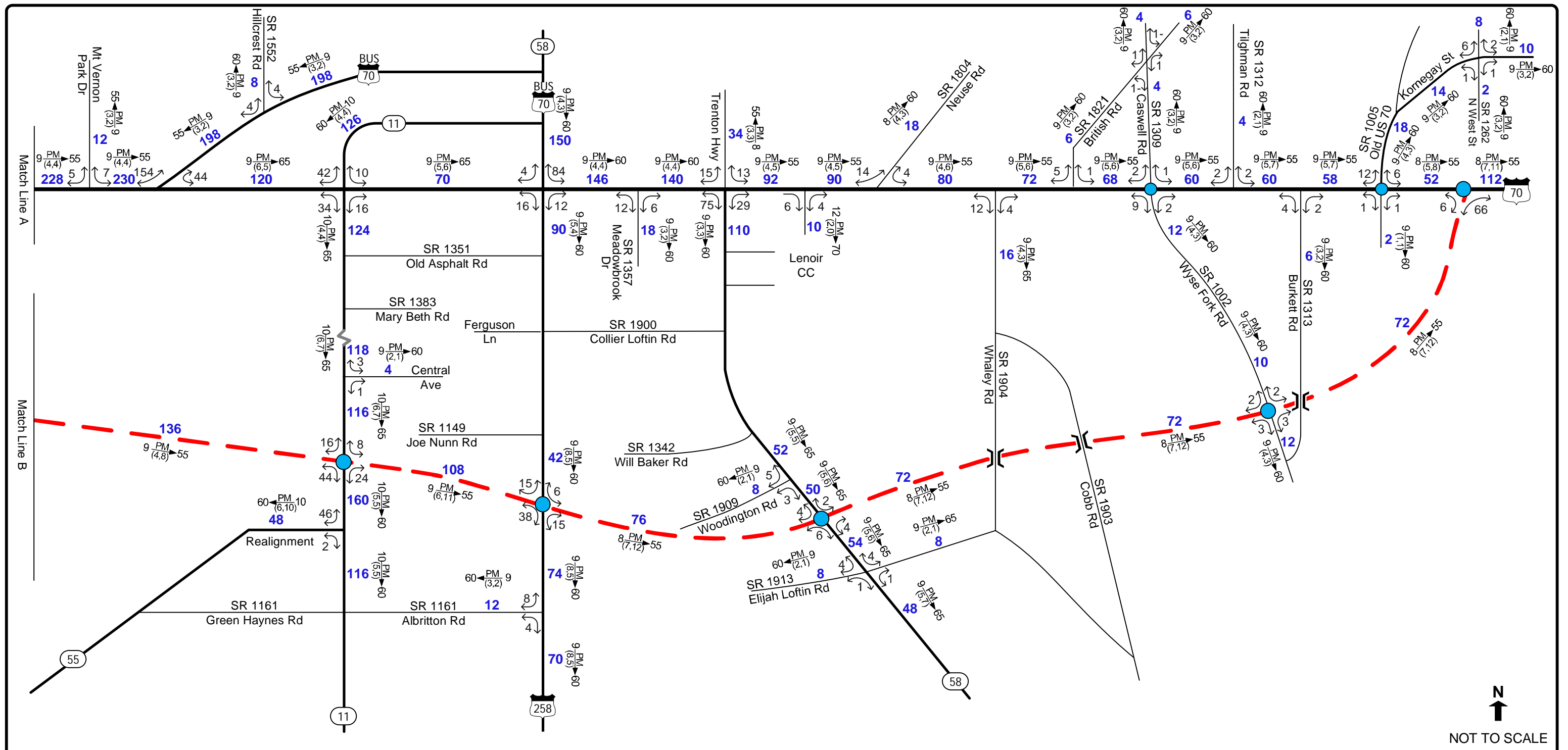
AVERAGE ANNUAL
DAILY TRAFFIC

Scenario 3B
Base Year

BUILD ALTERNATIVE 1S-P4
(Shallow Bypass) SHEET 2 OF 2

LEGEND

<ul style="list-style-type: none"> ### Vehicles Per Day (VPD) in 100s 1- Less than 50 VPD X Movement Prohibited — Roadway ● Future Interchange ● Existing Interchange 	<p style="text-align: center;">K PM → D (d, t)</p> <ul style="list-style-type: none"> K Design Hour Volume Percentage PM PM Peak Period D Peak Hour Directional Split → Indicates Direction of D (d,t) Duals, TT-STs (%) 	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">TIP: R-2553</td> <td style="padding: 2px;">WBS: 34460</td> </tr> <tr> <td style="padding: 2px;">COUNTY: Lenoir</td> <td style="padding: 2px;">DIVISION: 2</td> </tr> <tr> <td colspan="2" style="padding: 2px;">DATE: November 7, 2016</td> </tr> <tr> <td colspan="2" style="padding: 2px;">PREPARED BY: Parsons Brinckerhoff</td> </tr> <tr> <td colspan="2" style="padding: 2px;">LOCATION: US 70 from west of NC 903 in La Grange to east of Old US 70 in Dover</td> </tr> <tr> <td colspan="2" style="padding: 2px;">PROJECT: US 70 Kinston Bypass</td> </tr> </table>	TIP: R-2553	WBS: 34460	COUNTY: Lenoir	DIVISION: 2	DATE: November 7, 2016		PREPARED BY: Parsons Brinckerhoff		LOCATION: US 70 from west of NC 903 in La Grange to east of Old US 70 in Dover		PROJECT: US 70 Kinston Bypass	
TIP: R-2553	WBS: 34460													
COUNTY: Lenoir	DIVISION: 2													
DATE: November 7, 2016														
PREPARED BY: Parsons Brinckerhoff														
LOCATION: US 70 from west of NC 903 in La Grange to east of Old US 70 in Dover														
PROJECT: US 70 Kinston Bypass														



N
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NOT TO SCALE



2015

AVERAGE ANNUAL
DAILY TRAFFIC

Scenario 4 Base Year

BUILD ALTERNATIVE 11 SHEET 2 OF 2

LEGEND

- ### Vehicles Per Day (VPD) in 100s
- 1- Less than 50 VPD
- X Movement Prohibited
- Roadway
- Future Interchange
- Existing Interchange

K PM D
(d, t)

- K Design Hour Volume Percentage
- PM PM Peak Period
- D Peak Hour Directional Split
- Indicates Direction of D
- (d,t) Duals, TT-STs (%)

TIP: R-2553

COUNTY: Lenoir

DATE: November 7, 2016

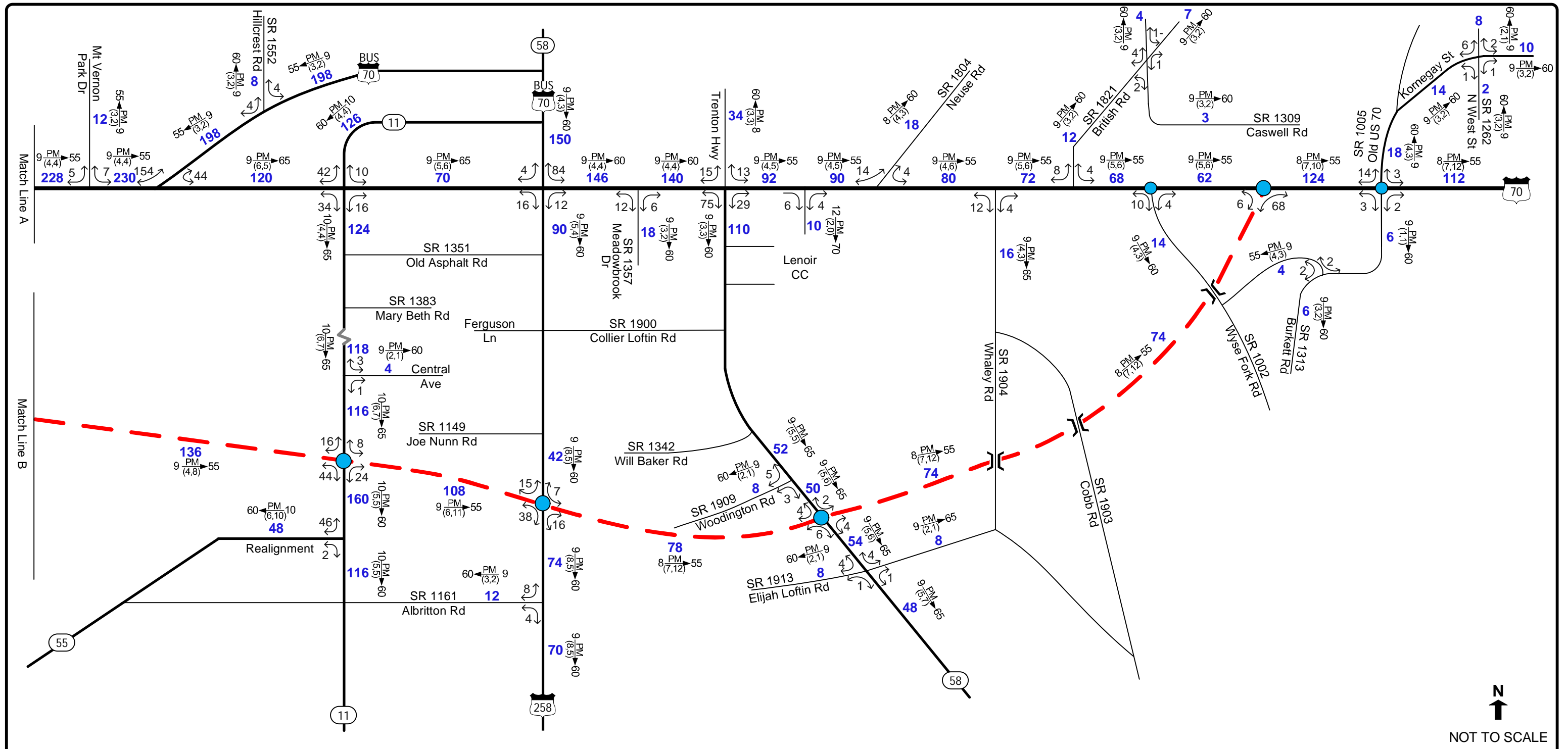
PREPARED BY: Parsons Brinckerhoff

LOCATION: US 70
from west of NC 903 in La Grange
to east of Old US 70 in Dover

PROJECT: US 70 Kinston Bypass

WBS: 34460

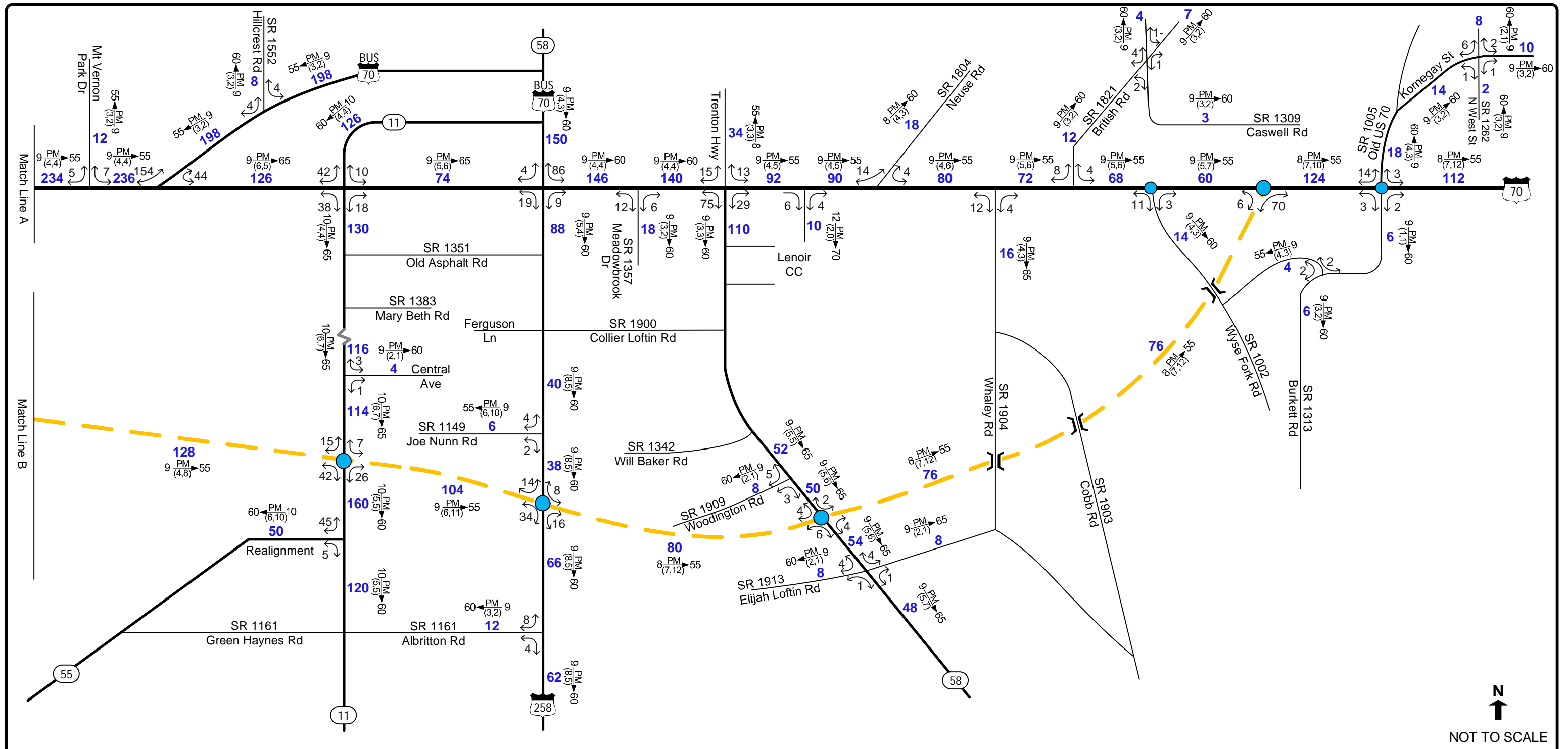
DIVISION: 2



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NOT TO SCALE



<h1>2015</h1>	AVERAGE ANNUAL DAILY TRAFFIC	Scenario 5 Base Year	BUILD ALTERNATIVE 12 SHEET 2 OF 2
	LEGEND		
###	Vehicles Per Day (VPD) in 100s	K $\xrightarrow{\text{PM}}$ D (d, t)	TIP: R-2553
1-	Less than 50 VPD	K	WBS: 34460
X	Movement Prohibited	PM	COUNTY: Lenoir
—	Roadway	D	DIVISION: 2
● (blue)	Future Interchange	→	DATE: November 7, 2016
● (black)	Existing Interchange	(d,t)	PREPARED BY: Parsons Brinckerhoff
			LOCATION: US 70 from west of NC 903 in La Grange to east of Old US 70 in Dover
			PROJECT: US 70 Kinston Bypass



N
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NOT TO SCALE



2015

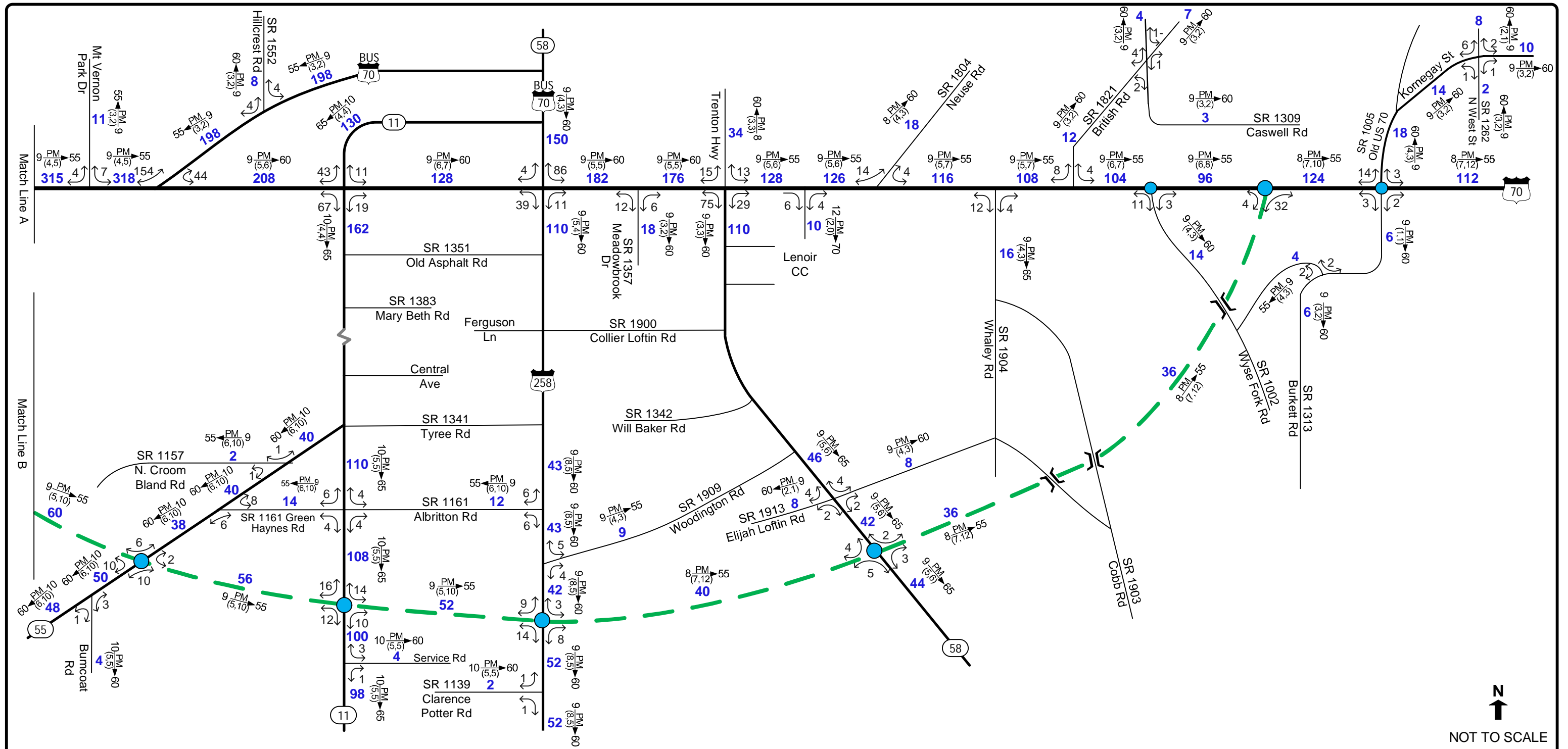
AVERAGE ANNUAL
DAILY TRAFFIC

Scenario 7
Base Year

BUILD ALTERNATIVE 32
SHEET 2 OF 2

LEGEND

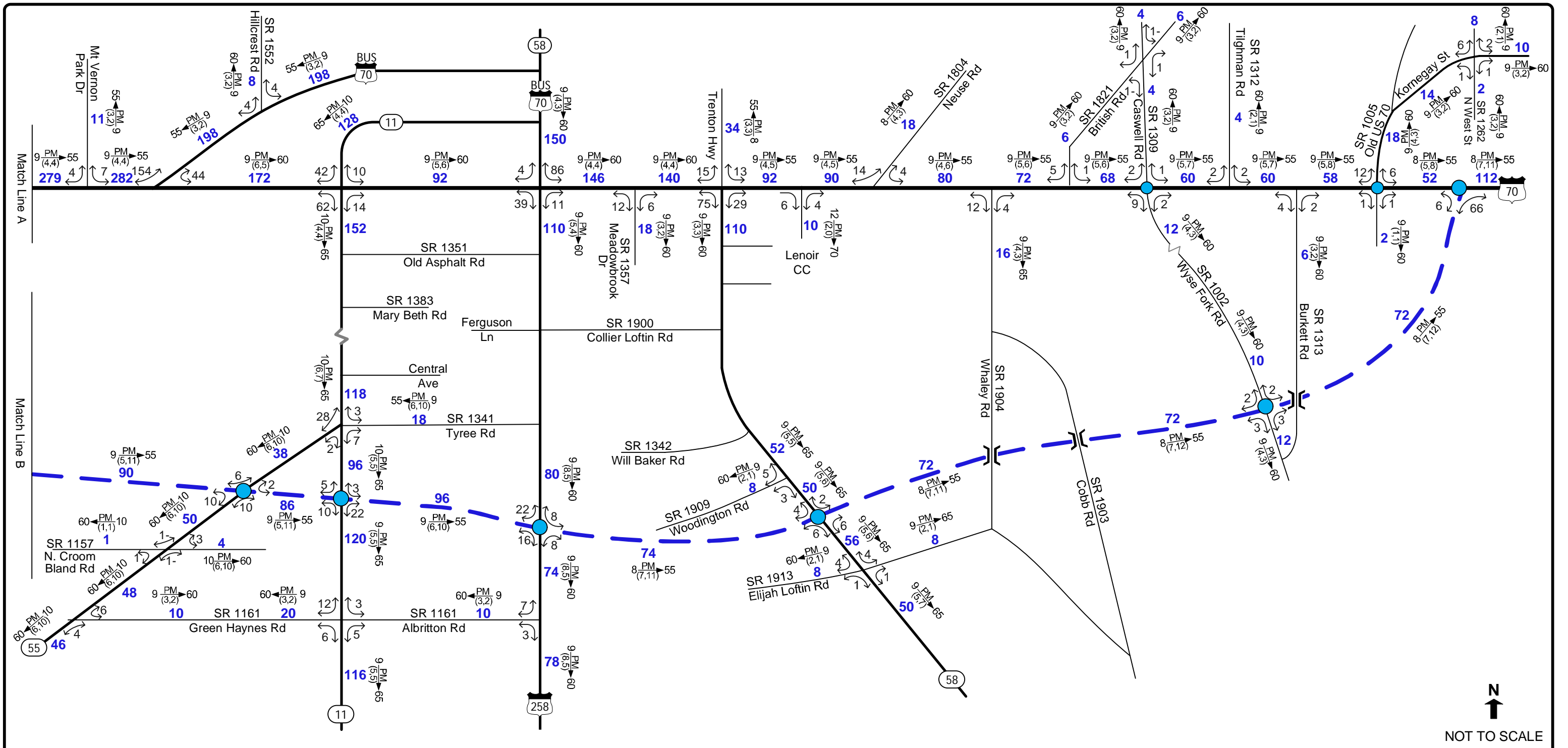
<p>### Vehicles Per Day (VPD) in 100s</p> <p>1- Less than 50 VPD</p> <p>X Movement Prohibited</p> <p>— Roadway</p> <p>● Future Interchange</p> <p>● Existing Interchange</p>	<p style="text-align: center;">K $\xrightarrow{\text{PM}}$ D (d, t)</p> <p>K Design Hour Volume Percentage</p> <p>PM PM Peak Period</p> <p>D Peak Hour Directional Split</p> <p>→ Indicates Direction of D</p> <p>(d,t) Duals, TT-STs (%)</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">TIP: R-2553</td> <td style="padding: 2px;">WBS: 34460</td> </tr> <tr> <td style="padding: 2px;">COUNTY: Lenoir</td> <td style="padding: 2px;">DIVISION: 2</td> </tr> <tr> <td colspan="2" style="padding: 2px;">DATE: November 7, 2016</td> </tr> <tr> <td colspan="2" style="padding: 2px;">PREPARED BY: Parsons Brinckerhoff</td> </tr> <tr> <td colspan="2" style="padding: 2px;">LOCATION: US 70 from west of NC 903 in La Grange to east of Old US 70 in Dover</td> </tr> <tr> <td colspan="2" style="padding: 2px;">PROJECT: US 70 Kinston Bypass</td> </tr> </table>	TIP: R-2553	WBS: 34460	COUNTY: Lenoir	DIVISION: 2	DATE: November 7, 2016		PREPARED BY: Parsons Brinckerhoff		LOCATION: US 70 from west of NC 903 in La Grange to east of Old US 70 in Dover		PROJECT: US 70 Kinston Bypass	
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COUNTY: Lenoir	DIVISION: 2													
DATE: November 7, 2016														
PREPARED BY: Parsons Brinckerhoff														
LOCATION: US 70 from west of NC 903 in La Grange to east of Old US 70 in Dover														
PROJECT: US 70 Kinston Bypass														



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NOT TO SCALE



<h1>2015</h1>	AVERAGE ANNUAL DAILY TRAFFIC	Scenario 8 Base Year	BUILD ALTERNATIVE 35 SHEET 2 OF 2
	LEGEND		
###	Vehicles Per Day (VPD) in 100s	K $\xrightarrow{\text{PM}}$ D (d, t)	TIP: R-2553
1-	Less than 50 VPD	K	WBS: 34460
X	Movement Prohibited	PM	COUNTY: Lenoir
—	Roadway	D	DIVISION: 2
● (blue)	Future Interchange	→	DATE: November 7, 2016
● (black)	Existing Interchange	(d,t)	PREPARED BY: Parsons Brinckerhoff
			LOCATION: US 70 from west of NC 903 in La Grange to east of Old US 70 in Dover
			PROJECT: US 70 Kinston Bypass

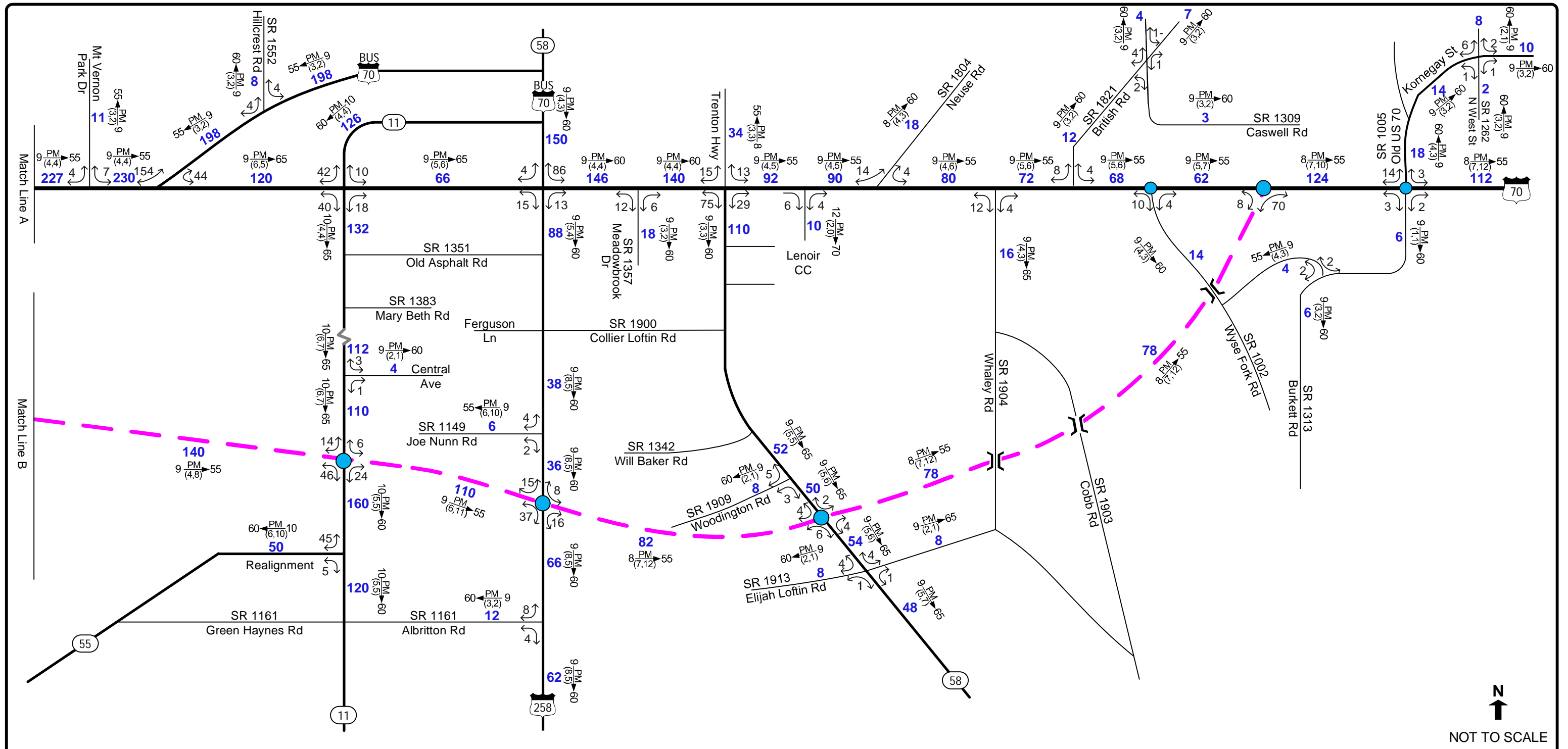


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NOT TO SCALE



<h1>2015</h1>	AVERAGE ANNUAL DAILY TRAFFIC	Scenario 10 Base Year	BUILD ALTERNATIVE 51 SHEET 2 OF 2
	LEGEND		
###	Vehicles Per Day (VPD) in 100s	K	Design Hour Volume Percentage
1-	Less than 50 VPD	PM	PM Peak Period
X	Movement Prohibited	D	Peak Hour Directional Split
—	Roadway	→	Indicates Direction of D
● (blue)	Future Interchange	(d,t)	Duals, TT-STs (%)
● (black)	Existing Interchange		

TIP: R-2553	WBS: 34460
COUNTY: Lenoir	DIVISION: 2
DATE: November 7, 2016	
PREPARED BY: Parsons Brinckerhoff	
LOCATION: US 70 from west of NC 903 in La Grange to east of Old US 70 in Dover	
PROJECT: US 70 Kinston Bypass	



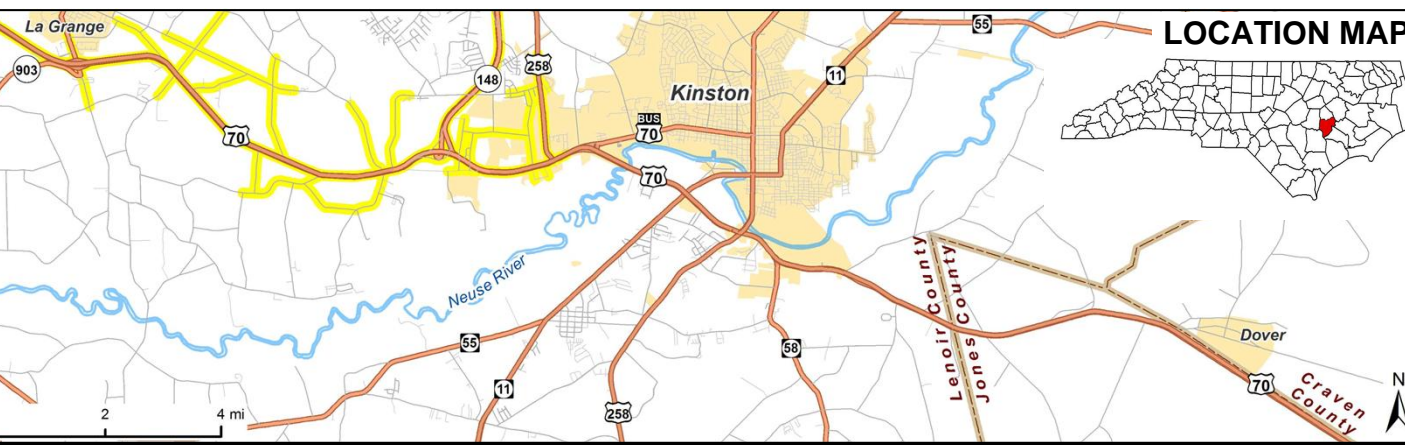
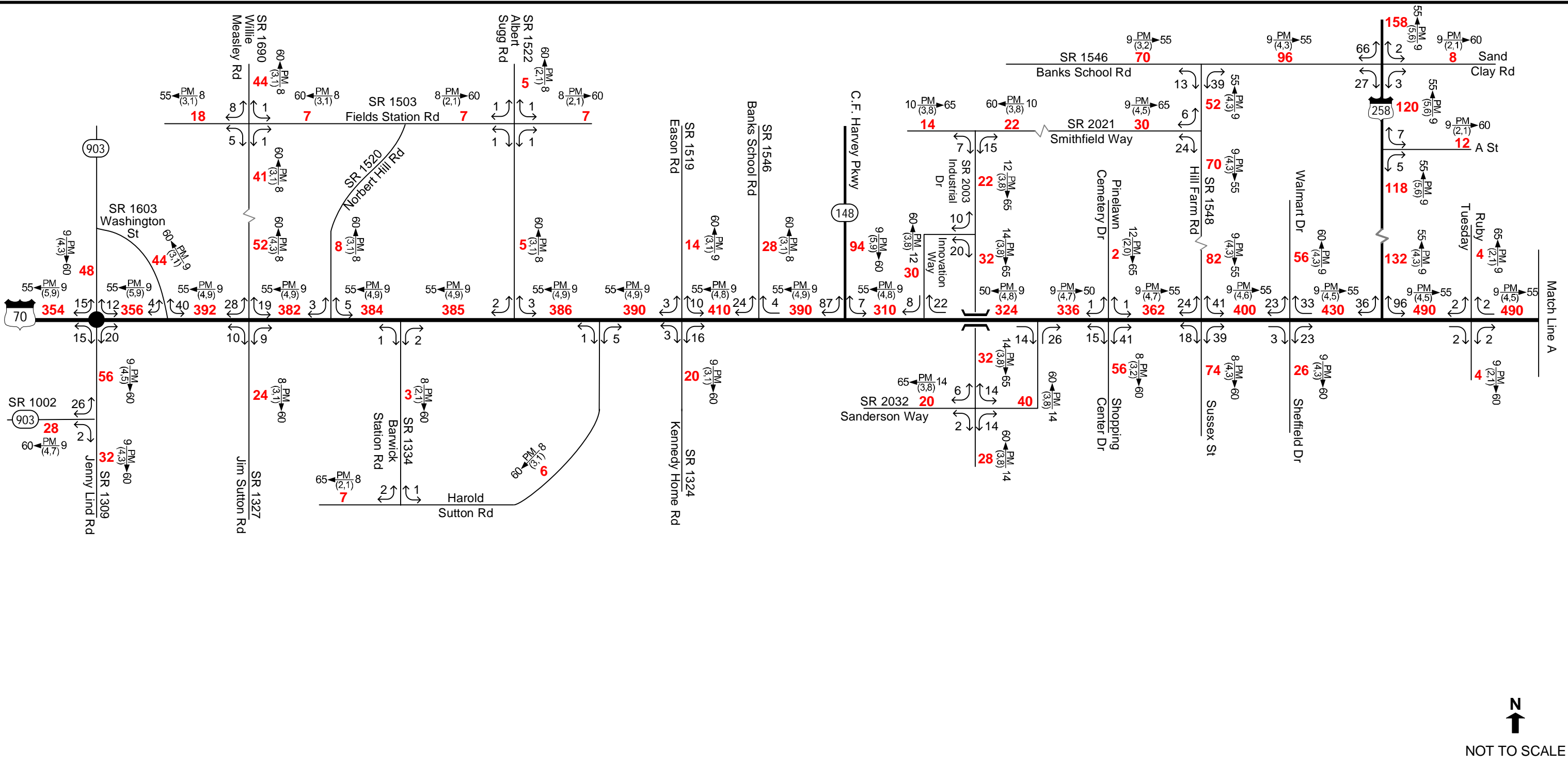
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NOT TO SCALE



<h1>2015</h1>	AVERAGE ANNUAL DAILY TRAFFIC	Scenario 12 Base Year	BUILD ALTERNATIVE 63 SHEET 2 OF 2
	LEGEND		
###	Vehicles Per Day (VPD) in 100s	K $\xrightarrow{\text{PM}}$ D (d, t)	TIP: R-2553
1-	Less than 50 VPD	K	WBS: 34460
X	Movement Prohibited	PM	COUNTY: Lenoir
—	Roadway	D	DIVISION: 2
● (blue)	Future Interchange	→	DATE: November 7, 2016
● (black)	Existing Interchange	(d,t)	PREPARED BY: Parsons Brinckerhoff
			LOCATION: US 70 from west of NC 903 in La Grange to east of Old US 70 in Dover
			PROJECT: US 70 Kinston Bypass

APPENDIX A

2040 Scenarios



2040

AVERAGE ANNUAL DAILY TRAFFIC

Scenario 14

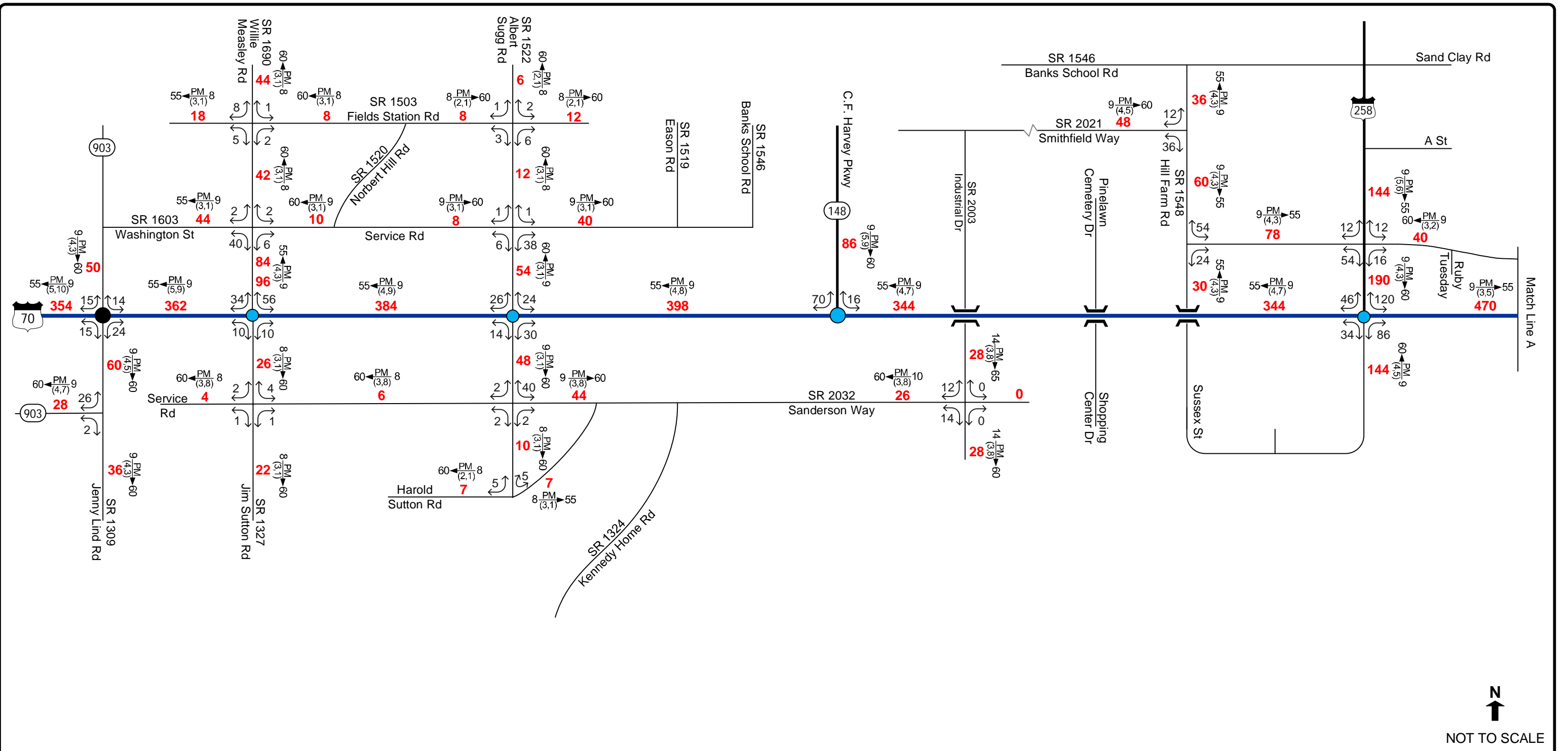
Horizon Year

NO BUILD ALTERNATIVE

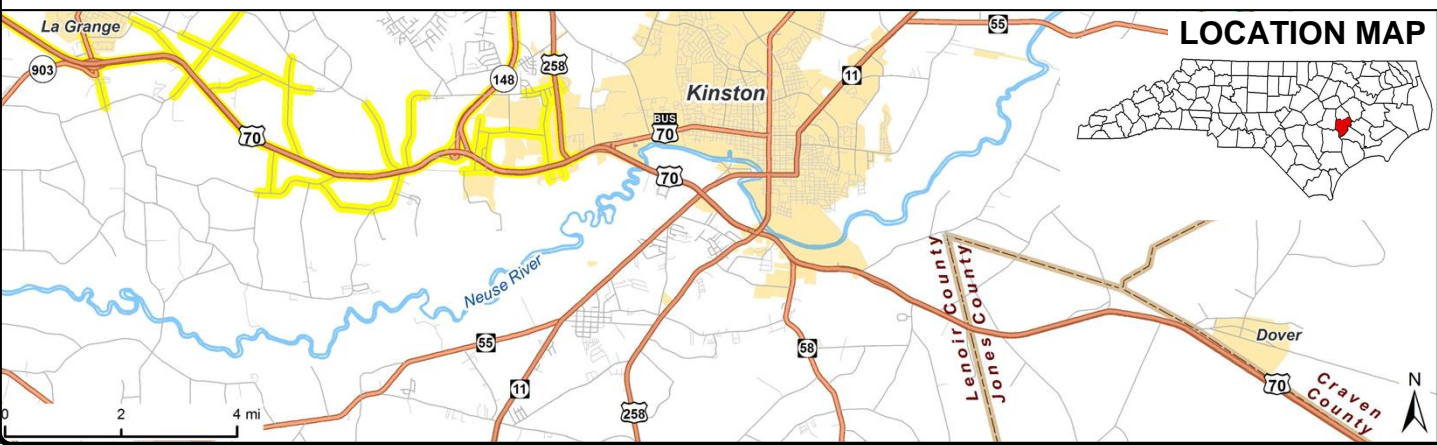
SHEET 1 OF 2

LEGEND

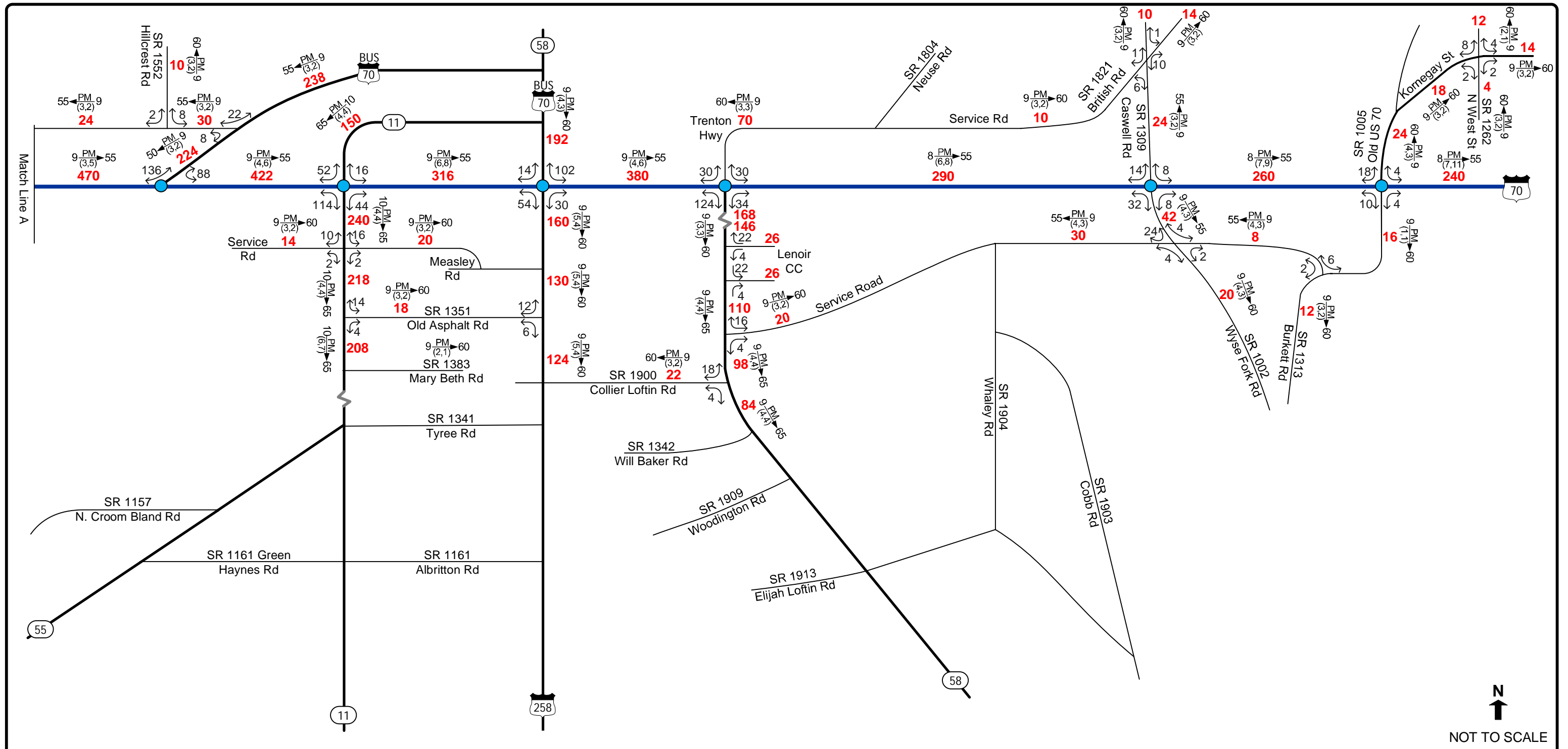
<p>### Vehicles Per Day (VPD) in 100s</p> <p>1- Less than 50 VPD</p> <p>X Movement Prohibited</p> <p>— Roadway</p> <p>● Future Interchange</p> <p>● Existing Interchange</p>	<p style="text-align: center;">K $\xrightarrow{\text{PM}}$ D</p> <p style="text-align: center;">(d, t)</p> <p>K Design Hour Volume Percentage</p> <p>PM PM Peak Period</p> <p>D Peak Hour Directional Split</p> <p>→ Indicates Direction of D</p> <p>(d,t) Duals, TT-STs (%)</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">TIP: R-2553</td> <td style="padding: 2px;">WBS: 34460</td> </tr> <tr> <td style="padding: 2px;">COUNTY: Lenoir</td> <td style="padding: 2px;">DIVISION: 2</td> </tr> <tr> <td colspan="2" style="padding: 2px;">DATE: November 7, 2016</td> </tr> <tr> <td colspan="2" style="padding: 2px;">PREPARED BY: Parsons Brinckerhoff</td> </tr> <tr> <td colspan="2" style="padding: 2px;">LOCATION: US 70 from west of NC 903 in La Grange to east of Old US 70 in Dover</td> </tr> <tr> <td colspan="2" style="padding: 2px;">PROJECT: US 70 Kinston Bypass</td> </tr> </table>	TIP: R-2553	WBS: 34460	COUNTY: Lenoir	DIVISION: 2	DATE: November 7, 2016		PREPARED BY: Parsons Brinckerhoff		LOCATION: US 70 from west of NC 903 in La Grange to east of Old US 70 in Dover		PROJECT: US 70 Kinston Bypass	
TIP: R-2553	WBS: 34460													
COUNTY: Lenoir	DIVISION: 2													
DATE: November 7, 2016														
PREPARED BY: Parsons Brinckerhoff														
LOCATION: US 70 from west of NC 903 in La Grange to east of Old US 70 in Dover														
PROJECT: US 70 Kinston Bypass														



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NOT TO SCALE



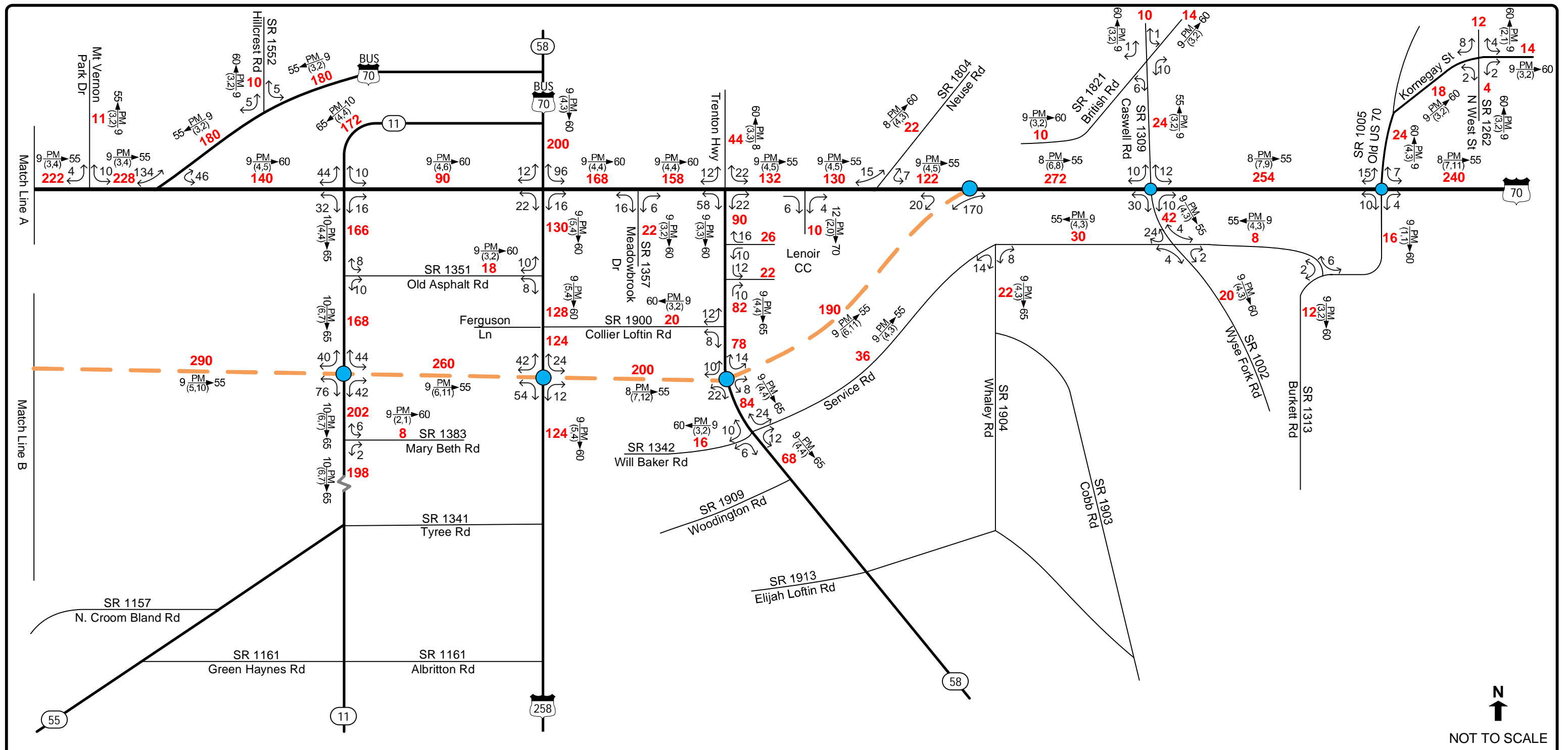
2040	AVERAGE ANNUAL DAILY TRAFFIC	Scenario 15 Horizon Year	BUILD ALTERNATIVE 1 (Upgrade US 70) SHEET 1 OF 2	
	LEGEND		TIP: R-2553	WBS: 34460
###	Vehicles Per Day (VPD) in 100s	K	DESIGN HOUR VOLUME PERCENTAGE	
1-	Less than 50 VPD	PM	PM PEAK PERIOD	
X	Movement Prohibited	D	PEAK HOUR DIRECTIONAL SPLIT	
—	Roadway	→	INDICATES DIRECTION OF D	
●	Future Interchange	(d,t)	DUALS, TT-STs (%)	
●	Existing Interchange			
			DATE: November 7, 2016	PREPARED BY: Parsons Brinckerhoff
			LOCATION: US 70 from west of NC 903 in La Grange to east of Old US 70 in Dover	
			PROJECT: US 70 Kinston Bypass	



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NOT TO SCALE



<h1>2040</h1>	AVERAGE ANNUAL DAILY TRAFFIC	Scenario 15 Horizon Year	BUILD ALTERNATIVE 1 (Upgrade US 70) SHEET 2 OF 2	
	LEGEND		TIP: R-2553	WBS: 34460
###	Vehicles Per Day (VPD) in 100s	K	Design Hour Volume Percentage	
1-	Less than 50 VPD	PM	PM Peak Period	
X	Movement Prohibited	D	Peak Hour Directional Split	
—	Roadway	→	Indicates Direction of D	
● (blue)	Future Interchange	(d,t)	Duals, TT-STs (%)	
● (black)	Existing Interchange			
			DATE: November 7, 2016	PREPARED BY: Parsons Brinckerhoff
			LOCATION: US 70 from west of NC 903 in La Grange to east of Old US 70 in Dover	
			PROJECT: US 70 Kinston Bypass	



N
↑
NOT TO SCALE



2040

AVERAGE ANNUAL
DAILY TRAFFIC

Scenario 16A

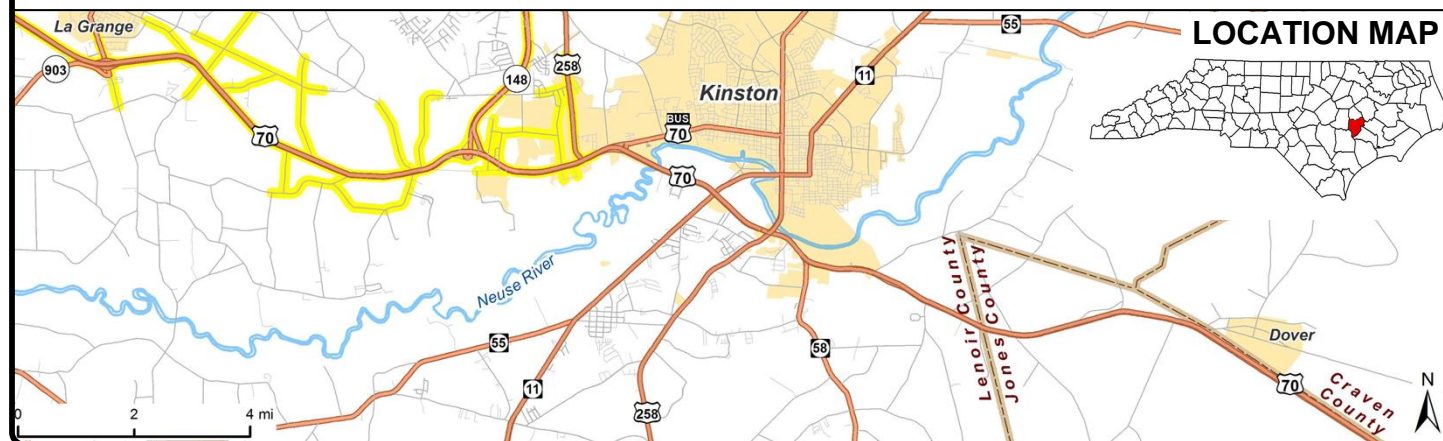
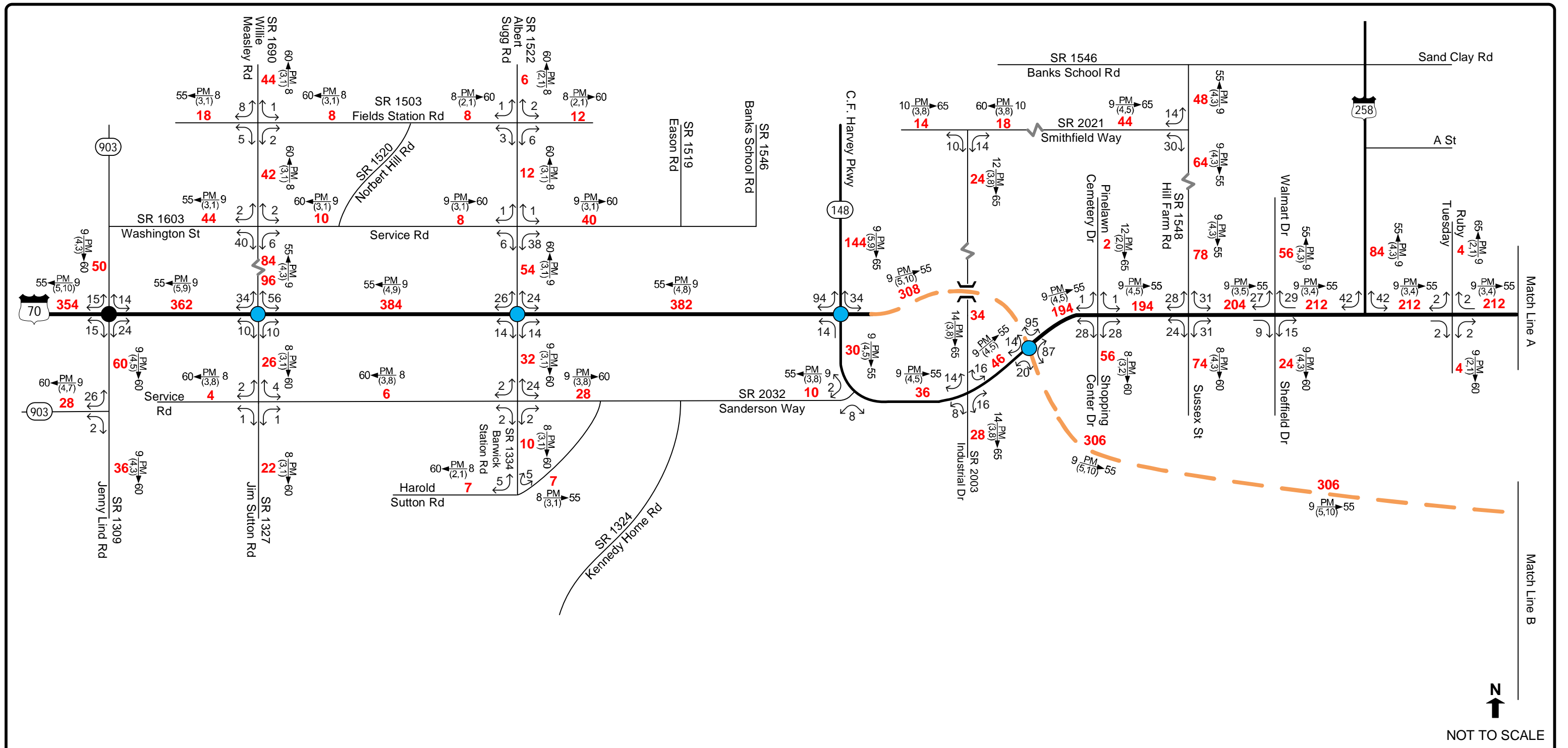
Horizon Year

BUILD ALTERNATIVE 1S-S5

(Shallow Bypass) SHEET 2 OF 2

LEGEND

<p>### Vehicles Per Day (VPD) in 100s</p> <p>1- Less than 50 VPD</p> <p>X Movement Prohibited</p> <p>— Roadway</p> <p>● Future Interchange</p> <p>● Existing Interchange</p>	<div style="text-align: center; margin-bottom: 5px;"> K PM D </div> <p>(d, t)</p> <p>K Design Hour Volume Percentage</p> <p>PM PM Peak Period</p> <p>D Peak Hour Directional Split</p> <p>→ Indicates Direction of D</p> <p>(d,t) Duals, TT-STs (%)</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">TIP: R-2553</td> <td style="padding: 2px;">WBS: 34460</td> </tr> <tr> <td style="padding: 2px;">COUNTY: Lenoir</td> <td style="padding: 2px;">DIVISION: 2</td> </tr> <tr> <td colspan="2" style="padding: 2px;">DATE: November 7, 2016</td> </tr> <tr> <td colspan="2" style="padding: 2px;">PREPARED BY: Parsons Brinckerhoff</td> </tr> <tr> <td colspan="2" style="padding: 2px;">LOCATION: US 70 from west of NC 903 in La Grange to east of Old US 70 in Dover</td> </tr> <tr> <td colspan="2" style="padding: 2px;">PROJECT: US 70 Kinston Bypass</td> </tr> </table>	TIP: R-2553	WBS: 34460	COUNTY: Lenoir	DIVISION: 2	DATE: November 7, 2016		PREPARED BY: Parsons Brinckerhoff		LOCATION: US 70 from west of NC 903 in La Grange to east of Old US 70 in Dover		PROJECT: US 70 Kinston Bypass	
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COUNTY: Lenoir	DIVISION: 2													
DATE: November 7, 2016														
PREPARED BY: Parsons Brinckerhoff														
LOCATION: US 70 from west of NC 903 in La Grange to east of Old US 70 in Dover														
PROJECT: US 70 Kinston Bypass														



2040

AVERAGE ANNUAL DAILY TRAFFIC

Scenario 16B

Horizon Year

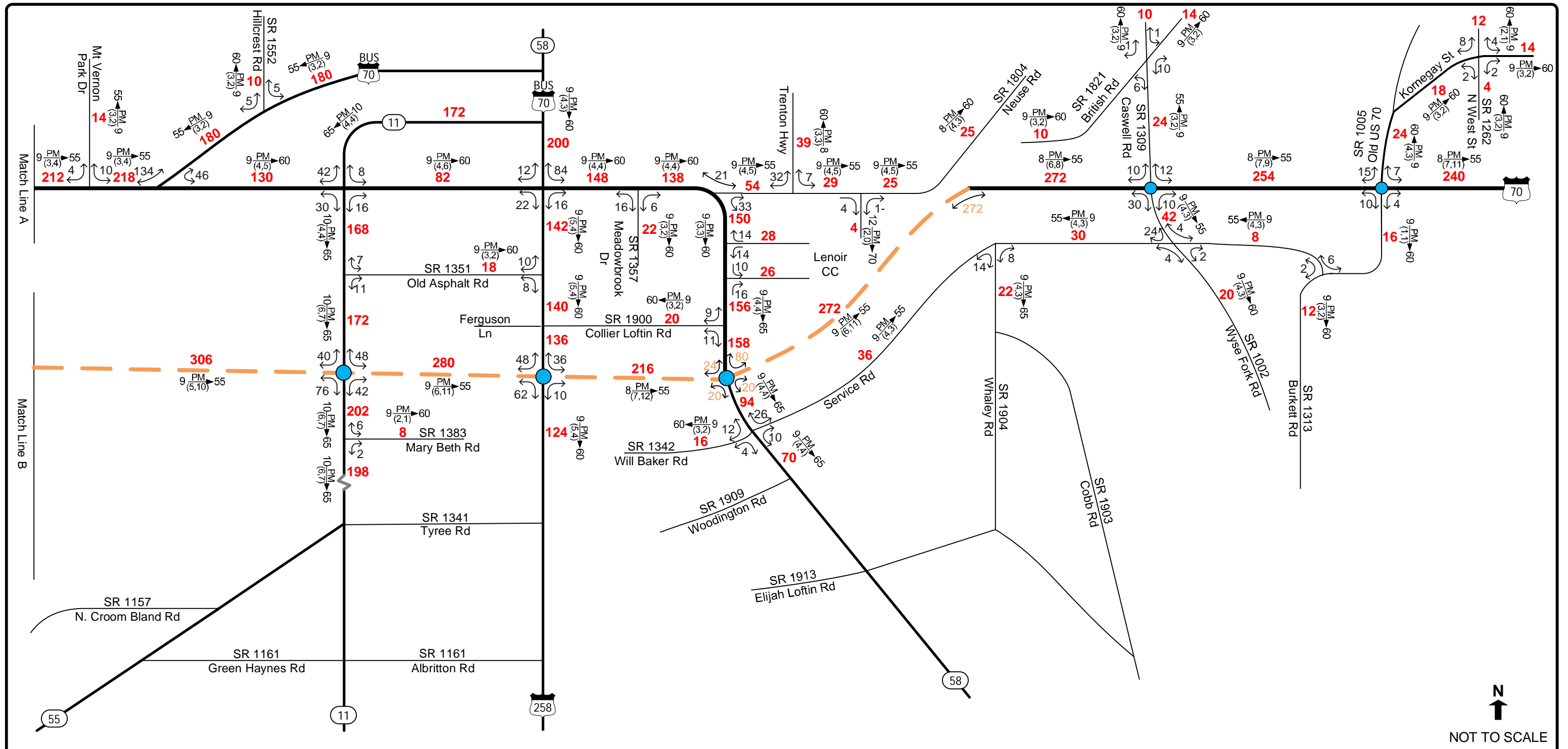
BUILD ALTERNATIVE 1S-P4

(Shallow Bypass) SHEET 1 OF 2

LEGEND

<p>### Vehicles Per Day (VPD) in 100s</p> <p>1- Less than 50 VPD</p> <p>X Movement Prohibited</p> <p>— Roadway</p> <p>● Future Interchange</p> <p>● Existing Interchange</p>	<p style="text-align: center;">K $\xrightarrow{\text{PM}}$ D</p> <p style="text-align: center;">(d, t)</p> <p>K Design Hour Volume Percentage</p> <p>PM PM Peak Period</p> <p>D Peak Hour Directional Split</p> <p>→ Indicates Direction of D</p> <p>(d,t) Duals, TT-STs (%)</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">TIP: R-2553</td> <td style="padding: 2px;">WBS: 34460</td> </tr> <tr> <td style="padding: 2px;">COUNTY: Lenoir</td> <td style="padding: 2px;">DIVISION: 2</td> </tr> <tr> <td colspan="2" style="padding: 2px;">DATE: November 7, 2016</td> </tr> <tr> <td colspan="2" style="padding: 2px;">PREPARED BY: Parsons Brinckerhoff</td> </tr> <tr> <td colspan="2" style="padding: 2px;">LOCATION: US 70 from west of NC 903 in La Grange to east of Old US 70 in Dover</td> </tr> <tr> <td colspan="2" style="padding: 2px;">PROJECT: US 70 Kinston Bypass</td> </tr> </table>	TIP: R-2553	WBS: 34460	COUNTY: Lenoir	DIVISION: 2	DATE: November 7, 2016		PREPARED BY: Parsons Brinckerhoff		LOCATION: US 70 from west of NC 903 in La Grange to east of Old US 70 in Dover		PROJECT: US 70 Kinston Bypass	
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PROJECT: US 70 Kinston Bypass														

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NOT TO SCALE



2040

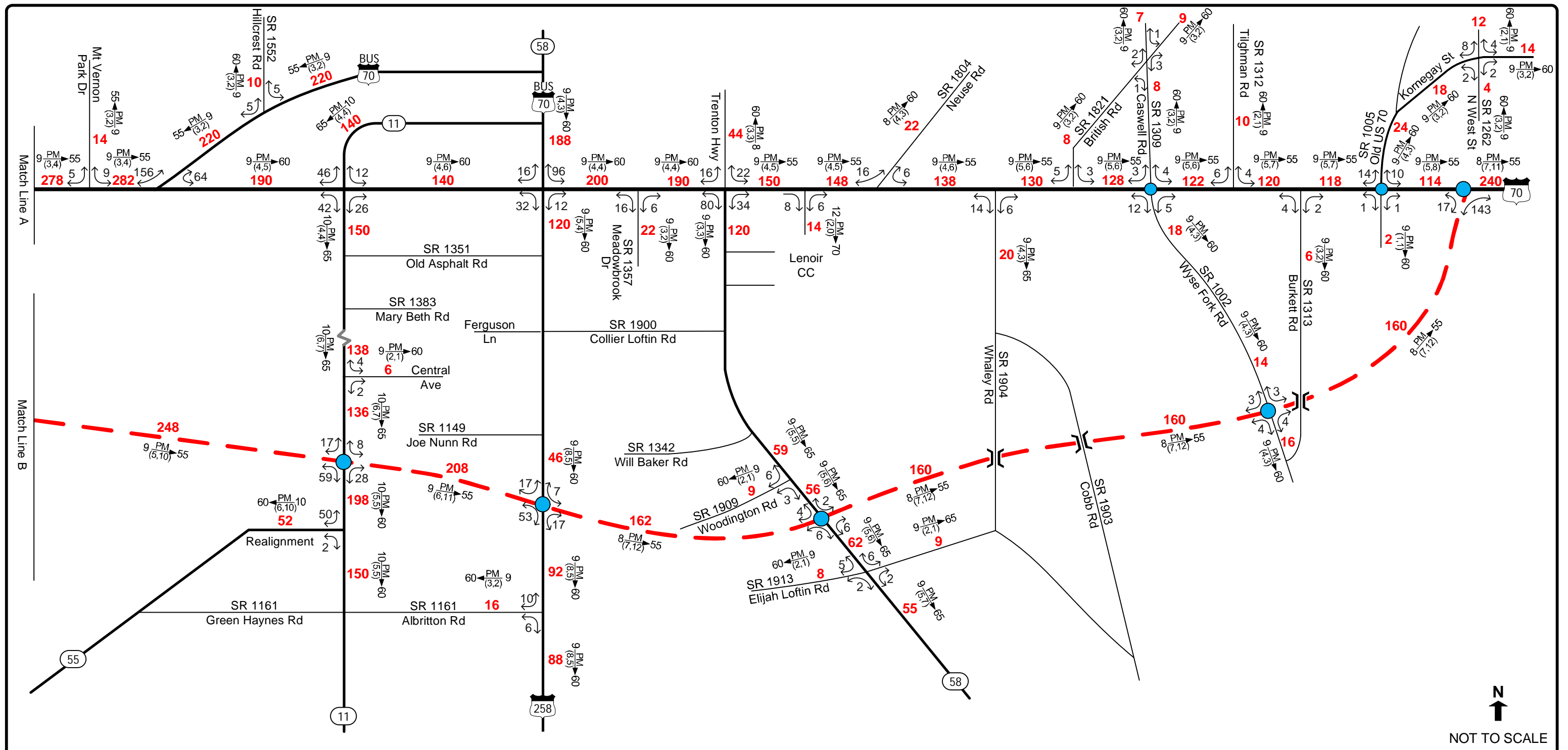
AVERAGE ANNUAL
DAILY TRAFFIC

Scenario 16B
Horizon Year

BUILD ALTERNATIVE 1S-P4
(Shallow Bypass) SHEET 2 OF 2

LEGEND

<p>### Vehicles Per Day (VPD) in 100s</p> <p>1- Less than 50 VPD</p> <p>X Movement Prohibited</p> <p>— Roadway</p> <p>● Future Interchange</p> <p>● Existing Interchange</p>	<p style="text-align: center;">K PM → D (d, t)</p> <p>K Design Hour Volume Percentage</p> <p>PM PM Peak Period</p> <p>D Peak Hour Directional Split</p> <p>→ Indicates Direction of D</p> <p>(d,t) Duals, TT-STs (%)</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">TIP: R-2553</td> <td style="padding: 2px;">WBS: 34460</td> </tr> <tr> <td style="padding: 2px;">COUNTY: Lenoir</td> <td style="padding: 2px;">DIVISION: 2</td> </tr> <tr> <td colspan="2" style="padding: 2px;">DATE: November 7, 2016</td> </tr> <tr> <td colspan="2" style="padding: 2px;">PREPARED BY: Parsons Brinckerhoff</td> </tr> <tr> <td colspan="2" style="padding: 2px;">LOCATION: US 70 from west of NC 903 in La Grange to east of Old US 70 in Dover</td> </tr> <tr> <td colspan="2" style="padding: 2px;">PROJECT: US 70 Kinston Bypass</td> </tr> </table>	TIP: R-2553	WBS: 34460	COUNTY: Lenoir	DIVISION: 2	DATE: November 7, 2016		PREPARED BY: Parsons Brinckerhoff		LOCATION: US 70 from west of NC 903 in La Grange to east of Old US 70 in Dover		PROJECT: US 70 Kinston Bypass	
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LOCATION: US 70 from west of NC 903 in La Grange to east of Old US 70 in Dover														
PROJECT: US 70 Kinston Bypass														



2040

AVERAGE ANNUAL
DAILY TRAFFIC

Scenario 17
Horizon Year

BUILD ALTERNATIVE 11
SHEET 2 OF 2

LEGEND

Vehicles Per Day (VPD) in 100s

1- Less than 50 VPD

X Movement Prohibited

— Roadway

● Future Interchange

● Existing Interchange

PM

← (d, t) →

K Design Hour Volume Percentage

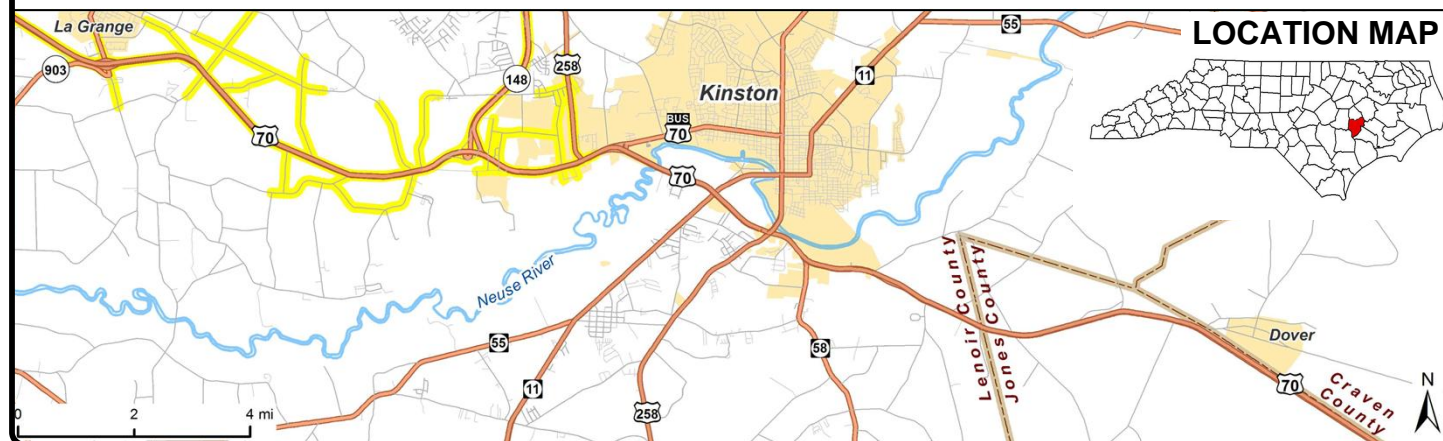
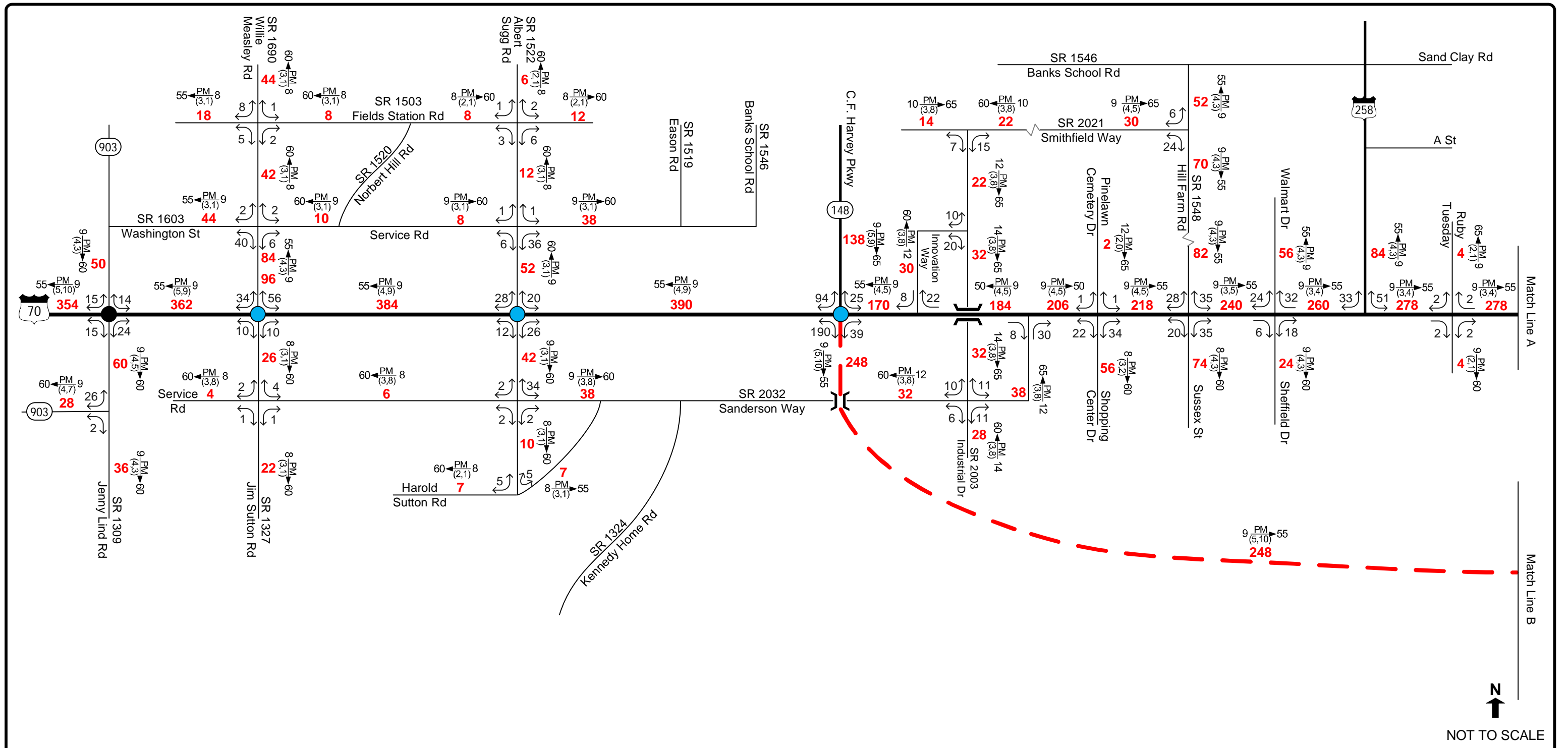
PM PM Peak Period

D Peak Hour Directional Split

→ Indicates Direction of D

(d,t) Duals, TT-STs (%)

TIP: R-2553	WBS: 34460
COUNTY: Lenoir	DIVISION: 2
DATE: November 7, 2016	
PREPARED BY: Parsons Brinckerhoff	
LOCATION: US 70 from west of NC 903 in La Grange to east of Old US 70 in Dover	
PROJECT: US 70 Kinston Bypass	



2040

AVERAGE ANNUAL DAILY TRAFFIC

Scenario 18
Horizon Year

BUILD ALTERNATIVE 12
SHEET 1 OF 2

TIP: R-2553 **WBS:** 34460

COUNTY: Lenoir **DIVISION:** 2

DATE: November 7, 2016

PREPARED BY: Parsons Brinckerhoff

LOCATION: US 70
from west of NC 903 in La Grange
to east of Old US 70 in Dover

PROJECT: US 70 Kinston Bypass

LEGEND

Vehicles Per Day (VPD) in 100s

1- Less than 50 VPD

X Movement Prohibited

— Roadway

● Future Interchange

● Existing Interchange

PM

← K → D

(d, t)

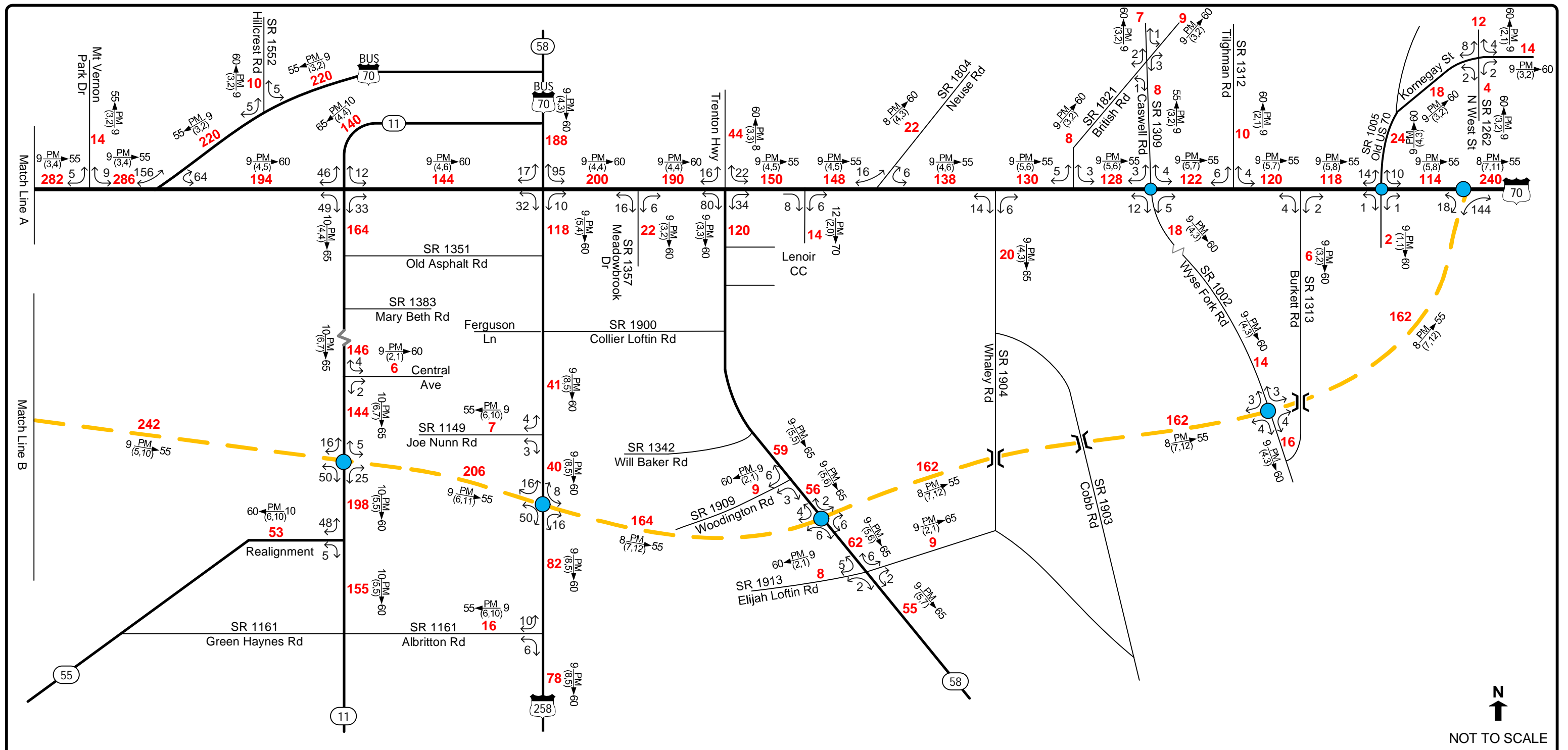
K Design Hour Volume Percentage

PM PM Peak Period

D Peak Hour Directional Split

→ Indicates Direction of D

(d,t) Duals, TT-STs (%)

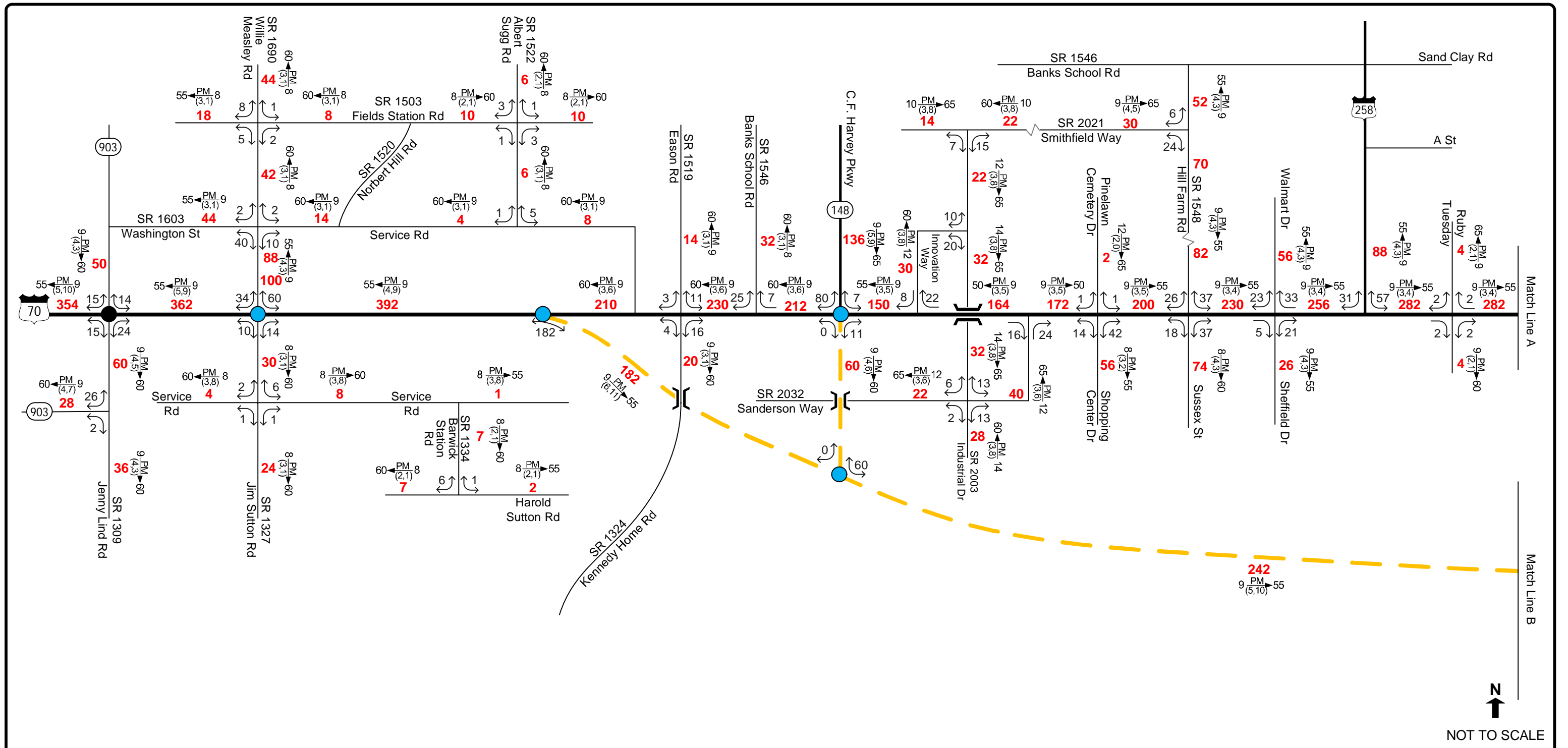


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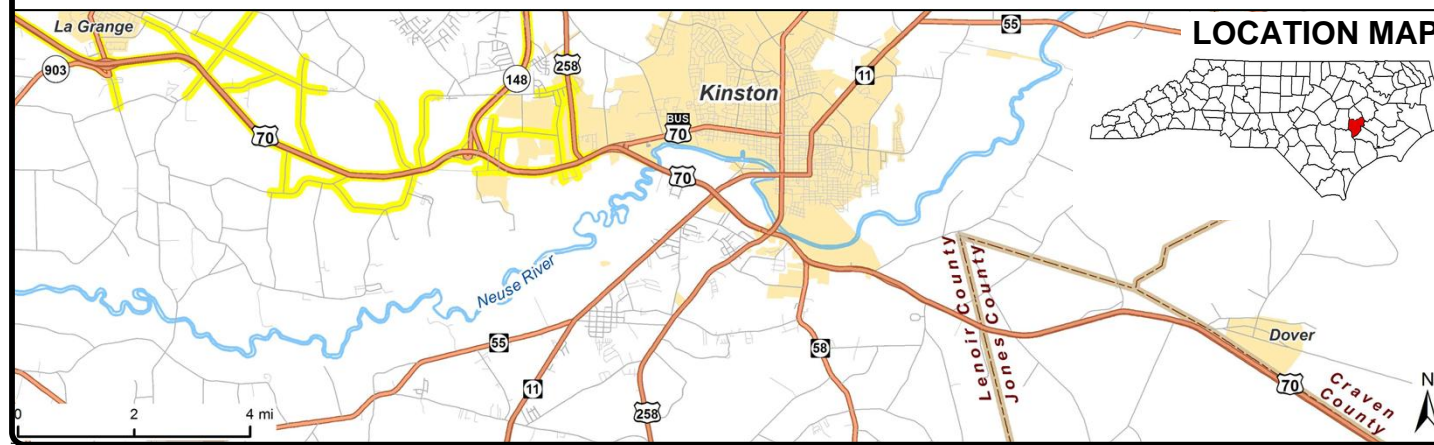


2040	AVERAGE ANNUAL DAILY TRAFFIC	Scenario 19 Horizon Year	BUILD ALTERNATIVE 31 SHEET 2 OF 2
	LEGEND		
###	Vehicles Per Day (VPD) in 100s	K	Design Hour Volume Percentage
1-	Less than 50 VPD	PM	PM Peak Period
X	Movement Prohibited	D	Peak Hour Directional Split
—	Roadway	→	Indicates Direction of D
● (blue)	Future Interchange	(d,t)	Duals, TT-STs (%)
● (black)	Existing Interchange		

TIP: R-2553	WBS: 34460
COUNTY: Lenoir	DIVISION: 2
DATE: November 7, 2016	
PREPARED BY: Parsons Brinckerhoff	
LOCATION: US 70 from west of NC 903 in La Grange to east of Old US 70 in Dover	
PROJECT: US 70 Kinston Bypass	



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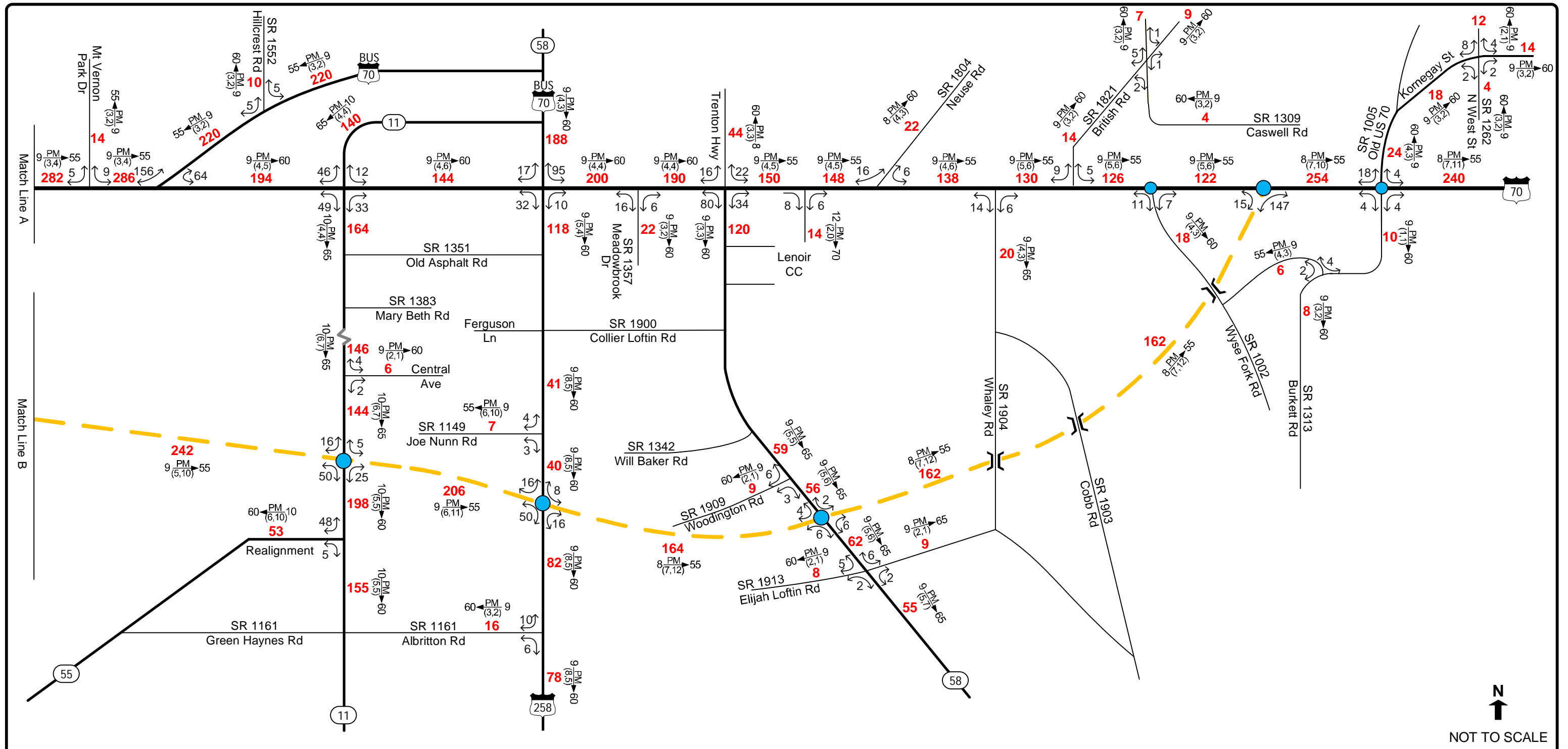
AVERAGE ANNUAL DAILY TRAFFIC

Scenario 20
Horizon Year

BUILD ALTERNATIVE 32
SHEET 1 OF 2

LEGEND

<p>### Vehicles Per Day (VPD) in 100s</p> <p>1- Less than 50 VPD</p> <p>X Movement Prohibited</p> <p>— Roadway</p> <p>● Future Interchange</p> <p>● Existing Interchange</p>	<p style="text-align: center;">K $\xrightarrow{\text{PM}}$ D (d, t)</p> <p>K Design Hour Volume Percentage</p> <p>PM PM Peak Period</p> <p>D Peak Hour Directional Split</p> <p>→ Indicates Direction of D</p> <p>(d,t) Duals, TT-STs (%)</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">TIP: R-2553</td> <td style="padding: 2px;">WBS: 34460</td> </tr> <tr> <td style="padding: 2px;">COUNTY: Lenoir</td> <td style="padding: 2px;">DIVISION: 2</td> </tr> <tr> <td colspan="2" style="padding: 2px;">DATE: November 7, 2016</td> </tr> <tr> <td colspan="2" style="padding: 2px;">PREPARED BY: Parsons Brinckerhoff</td> </tr> <tr> <td colspan="2" style="padding: 2px;">LOCATION: US 70 from west of NC 903 in La Grange to east of Old US 70 in Dover</td> </tr> <tr> <td colspan="2" style="padding: 2px;">PROJECT: US 70 Kinston Bypass</td> </tr> </table>	TIP: R-2553	WBS: 34460	COUNTY: Lenoir	DIVISION: 2	DATE: November 7, 2016		PREPARED BY: Parsons Brinckerhoff		LOCATION: US 70 from west of NC 903 in La Grange to east of Old US 70 in Dover		PROJECT: US 70 Kinston Bypass	
TIP: R-2553	WBS: 34460													
COUNTY: Lenoir	DIVISION: 2													
DATE: November 7, 2016														
PREPARED BY: Parsons Brinckerhoff														
LOCATION: US 70 from west of NC 903 in La Grange to east of Old US 70 in Dover														
PROJECT: US 70 Kinston Bypass														

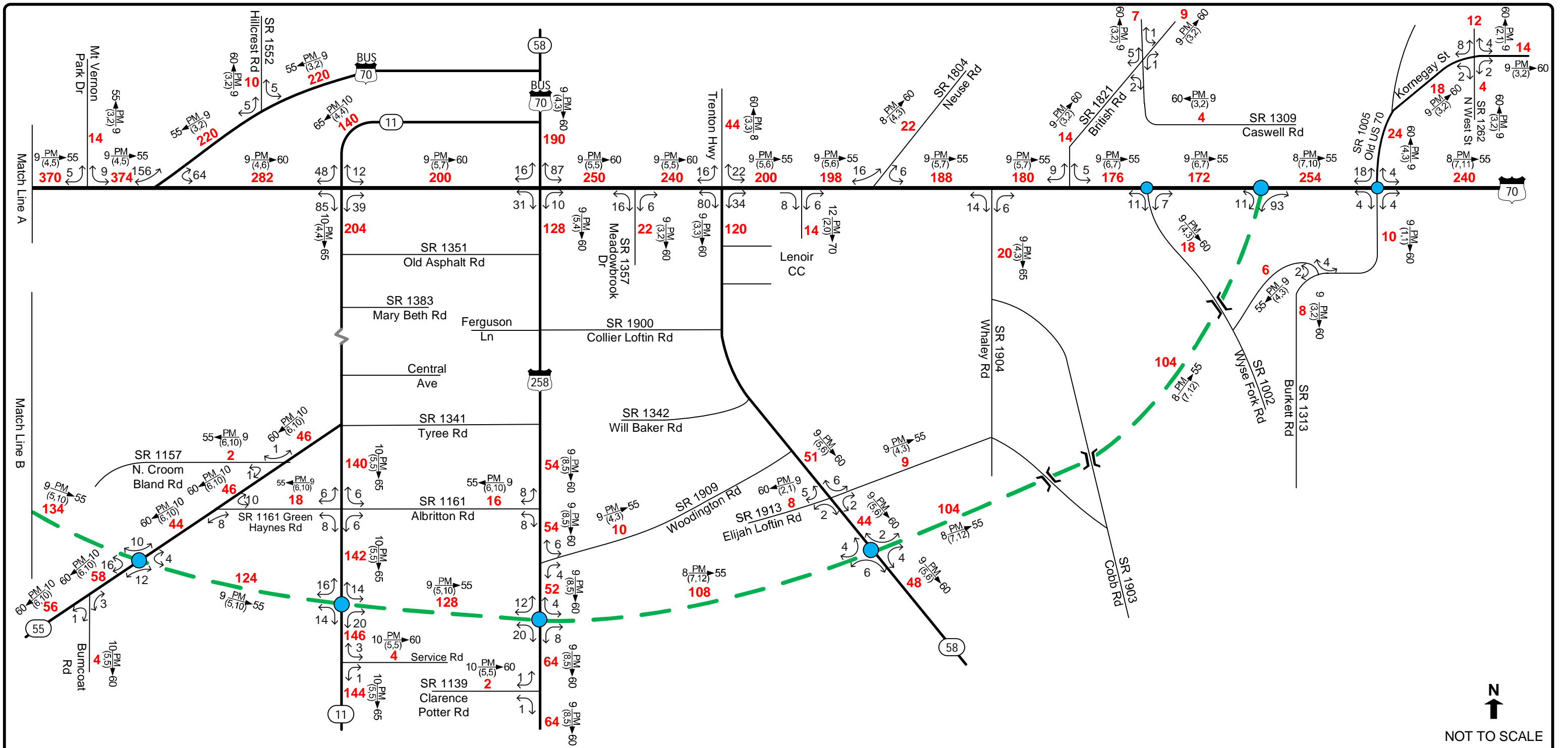


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NOT TO SCALE



2040	AVERAGE ANNUAL DAILY TRAFFIC	Scenario 20 Horizon Year	BUILD ALTERNATIVE 32 SHEET 2 OF 2
	LEGEND		
###	Vehicles Per Day (VPD) in 100s	K	Design Hour Volume Percentage
1-	Less than 50 VPD	PM	PM Peak Period
X	Movement Prohibited	D	Peak Hour Directional Split
—	Roadway	→	Indicates Direction of D
● (blue)	Future Interchange	(d,t)	Duals, TT-STs (%)
● (black)	Existing Interchange		

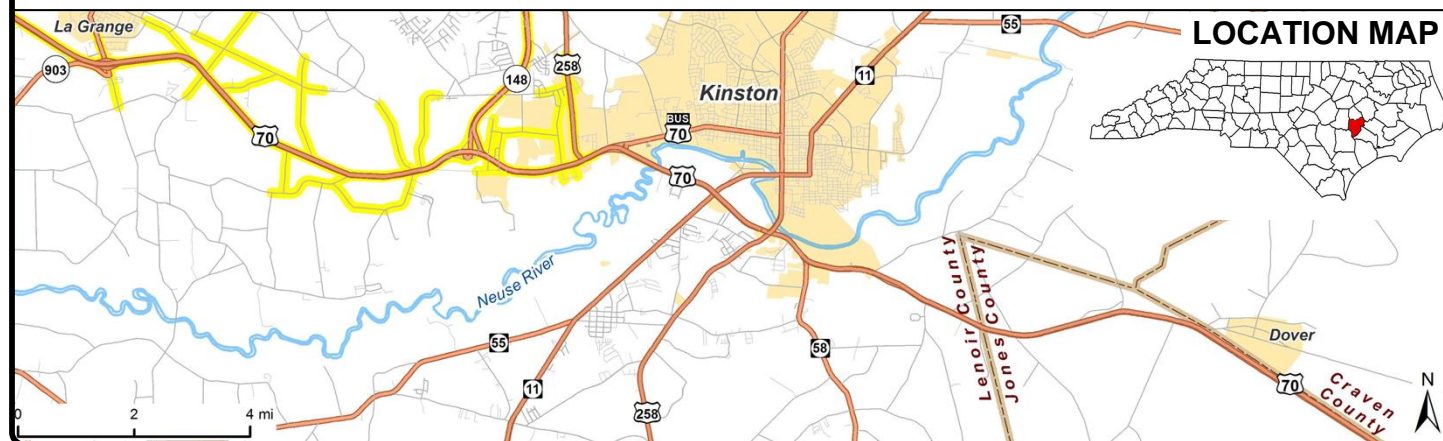
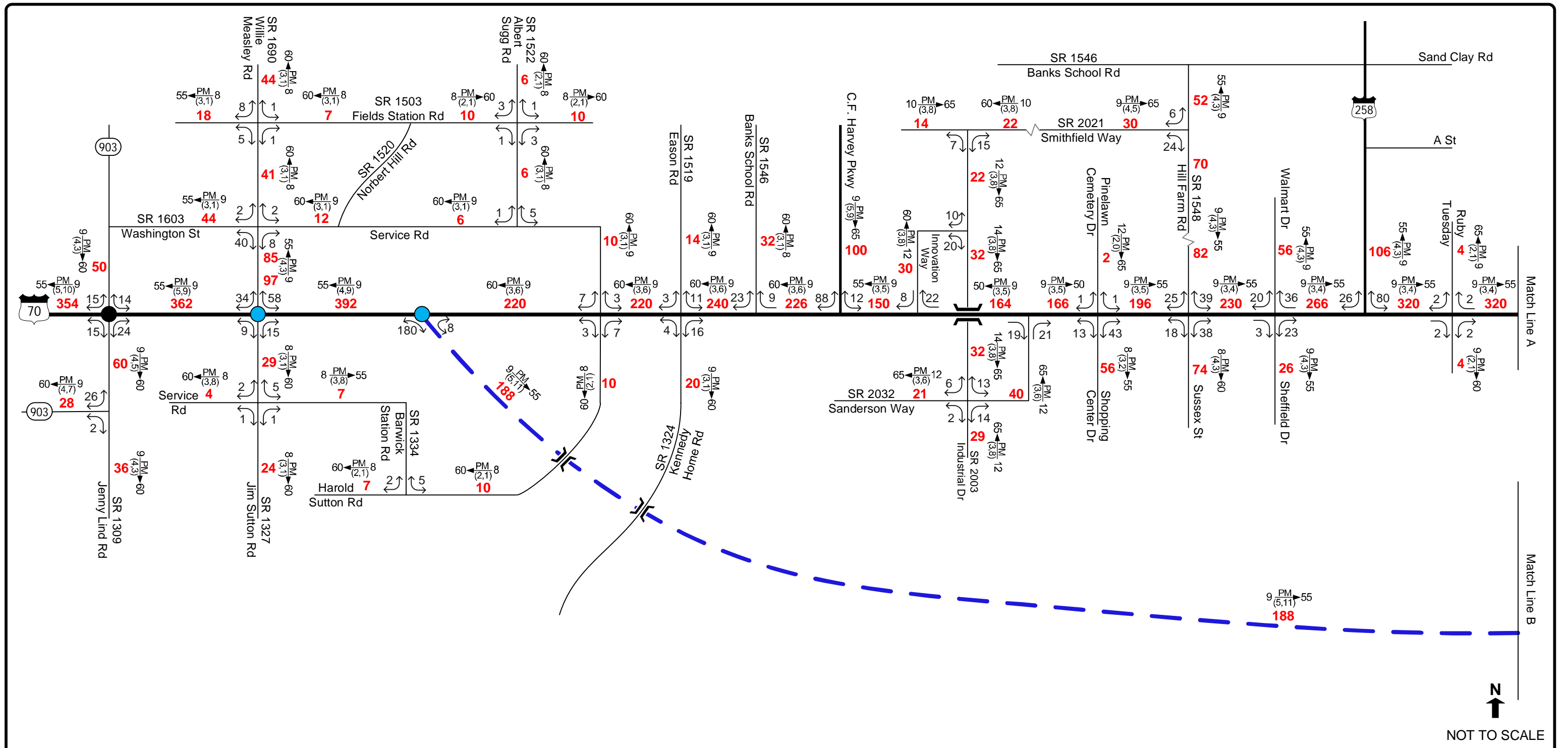
TIP: R-2553	WBS: 34460
COUNTY: Lenoir	DIVISION: 2
DATE: November 7, 2016	
PREPARED BY: Parsons Brinckerhoff	
LOCATION: US 70 from west of NC 903 in La Grange to east of Old US 70 in Dover	
PROJECT: US 70 Kinston Bypass	



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NOT TO SCALE



2040	AVERAGE ANNUAL DAILY TRAFFIC	Scenario 21 Horizon Year	BUILD ALTERNATIVE 35	
			SHEET 2 OF 2	
LEGEND			TIP: R-2553	WBS: 34460
###	Vehicles Per Day (VPD) in 100s	K	COUNTY: Lenoir	
1-	Less than 50 VPD	PM	DIVISION: 2	
X	Movement Prohibited	D	DATE: November 7, 2016	
—	Roadway	→	PREPARED BY: Parsons Brinckerhoff	
● (blue)	Future Interchange	(d,t)	LOCATION: US 70 from west of NC 903 in La Grange to east of Old US 70 in Dover	
● (black)	Existing Interchange		PROJECT: US 70 Kinston Bypass	



2040

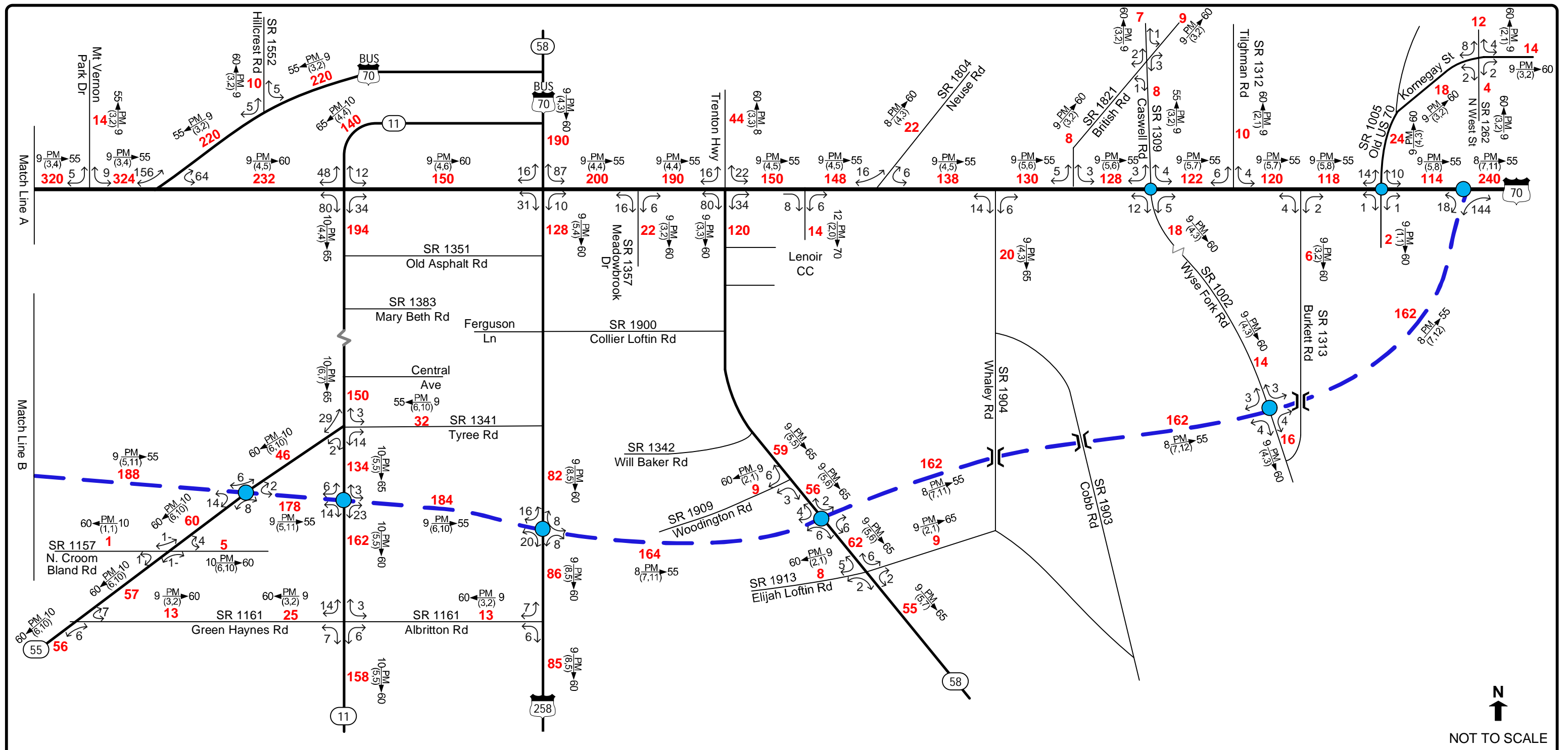
AVERAGE ANNUAL DAILY TRAFFIC

Scenario 23
Horizon Year

BUILD ALTERNATIVE 51
SHEET 1 OF 2

LEGEND

<p>### Vehicles Per Day (VPD) in 100s</p> <p>1- Less than 50 VPD</p> <p>X Movement Prohibited</p> <p>— Roadway</p> <p>● Future Interchange</p> <p>● Existing Interchange</p>	<p style="text-align: center;">K $\xrightarrow{\text{PM}}$ D (d, t)</p> <p>K Design Hour Volume Percentage</p> <p>PM PM Peak Period</p> <p>D Peak Hour Directional Split</p> <p>→ Indicates Direction of D</p> <p>(d,t) Duals, TT-STs (%)</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">TIP: R-2553</td> <td style="padding: 2px;">WBS: 34460</td> </tr> <tr> <td style="padding: 2px;">COUNTY: Lenoir</td> <td style="padding: 2px;">DIVISION: 2</td> </tr> <tr> <td colspan="2" style="padding: 2px;">DATE: November 7, 2016</td> </tr> <tr> <td colspan="2" style="padding: 2px;">PREPARED BY: Parsons Brinckerhoff</td> </tr> <tr> <td colspan="2" style="padding: 2px;">LOCATION: US 70 from west of NC 903 in La Grange to east of Old US 70 in Dover</td> </tr> <tr> <td colspan="2" style="padding: 2px;">PROJECT: US 70 Kinston Bypass</td> </tr> </table>	TIP: R-2553	WBS: 34460	COUNTY: Lenoir	DIVISION: 2	DATE: November 7, 2016		PREPARED BY: Parsons Brinckerhoff		LOCATION: US 70 from west of NC 903 in La Grange to east of Old US 70 in Dover		PROJECT: US 70 Kinston Bypass	
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2040

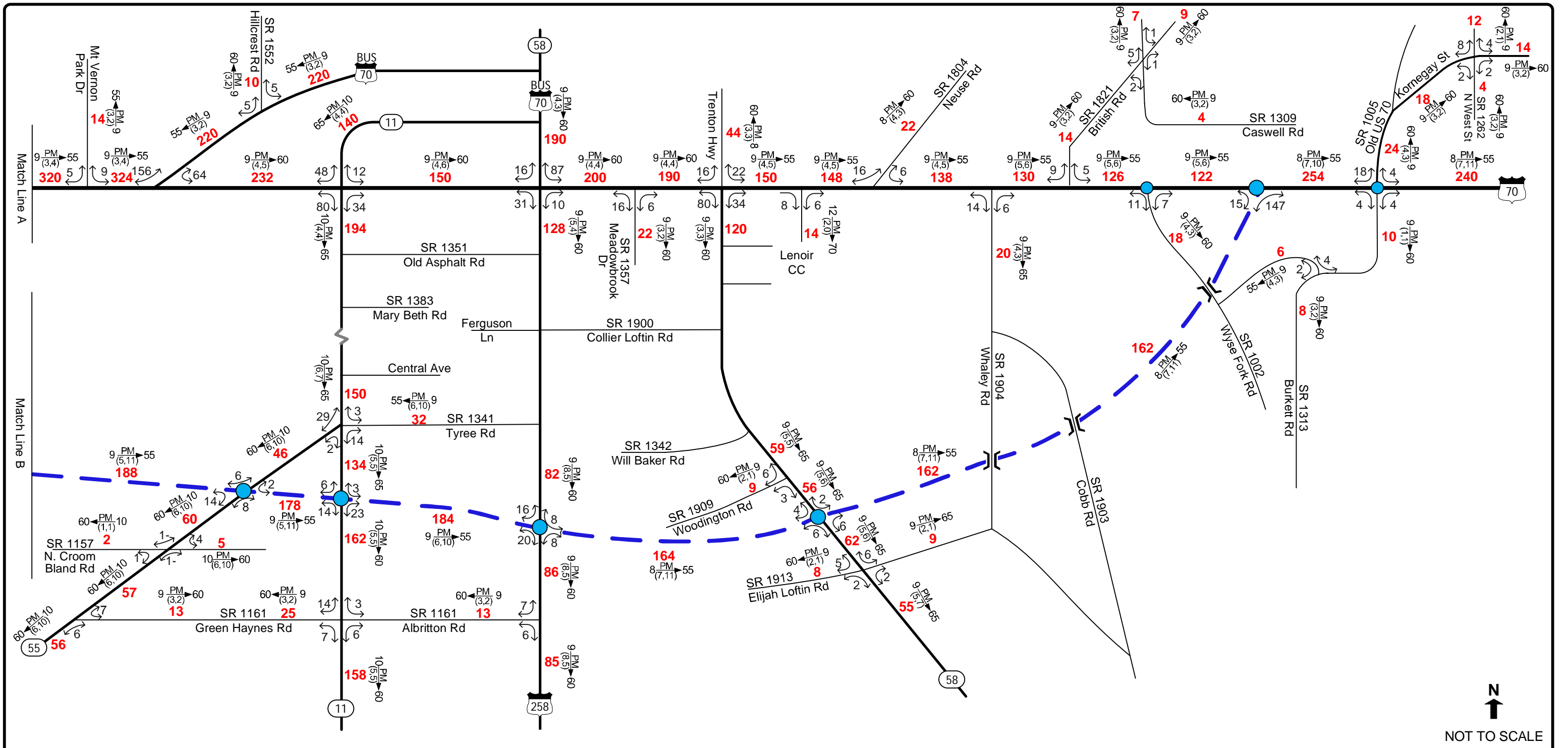
AVERAGE ANNUAL
DAILY TRAFFIC

Scenario 23
Horizon Year

BUILD ALTERNATIVE 51
SHEET 2 OF 2

LEGEND

<p>### Vehicles Per Day (VPD) in 100s</p> <p>1- Less than 50 VPD</p> <p>X Movement Prohibited</p> <p>— Roadway</p> <p>● Future Interchange</p> <p>● Existing Interchange</p>	<p style="text-align: center;">K PM D (d, t)</p> <p>K Design Hour Volume Percentage</p> <p>PM PM Peak Period</p> <p>D Peak Hour Directional Split</p> <p>→ Indicates Direction of D</p> <p>(d,t) Duals, TT-STs (%)</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">TIP: R-2553</td> <td style="padding: 2px;">WBS: 34460</td> </tr> <tr> <td style="padding: 2px;">COUNTY: Lenoir</td> <td style="padding: 2px;">DIVISION: 2</td> </tr> <tr> <td colspan="2" style="padding: 2px;">DATE: November 7, 2016</td> </tr> <tr> <td colspan="2" style="padding: 2px;">PREPARED BY: Parsons Brinckerhoff</td> </tr> <tr> <td colspan="2" style="padding: 2px;">LOCATION: US 70 from west of NC 903 in La Grange to east of Old US 70 in Dover</td> </tr> <tr> <td colspan="2" style="padding: 2px;">PROJECT: US 70 Kinston Bypass</td> </tr> </table>	TIP: R-2553	WBS: 34460	COUNTY: Lenoir	DIVISION: 2	DATE: November 7, 2016		PREPARED BY: Parsons Brinckerhoff		LOCATION: US 70 from west of NC 903 in La Grange to east of Old US 70 in Dover		PROJECT: US 70 Kinston Bypass	
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2040

AVERAGE ANNUAL
DAILY TRAFFIC

Scenario 24
Horizon Year

BUILD ALTERNATIVE 52
SHEET 2 OF 2

TIP: R-2553

WBS: 34460

COUNTY: Lenoir

DIVISION: 2

DATE: November 7, 2016

PREPARED BY: Parsons Brinckerhoff

LOCATION: US 70
from west of NC 903 in La Grange
to east of Old US 70 in Dover

PROJECT: US 70 Kinston Bypass

LEGEND

Vehicles Per Day (VPD) in 100s

1- Less than 50 VPD

X Movement Prohibited

— Roadway

● Future Interchange

● Existing Interchange

K PM D
(d, t)

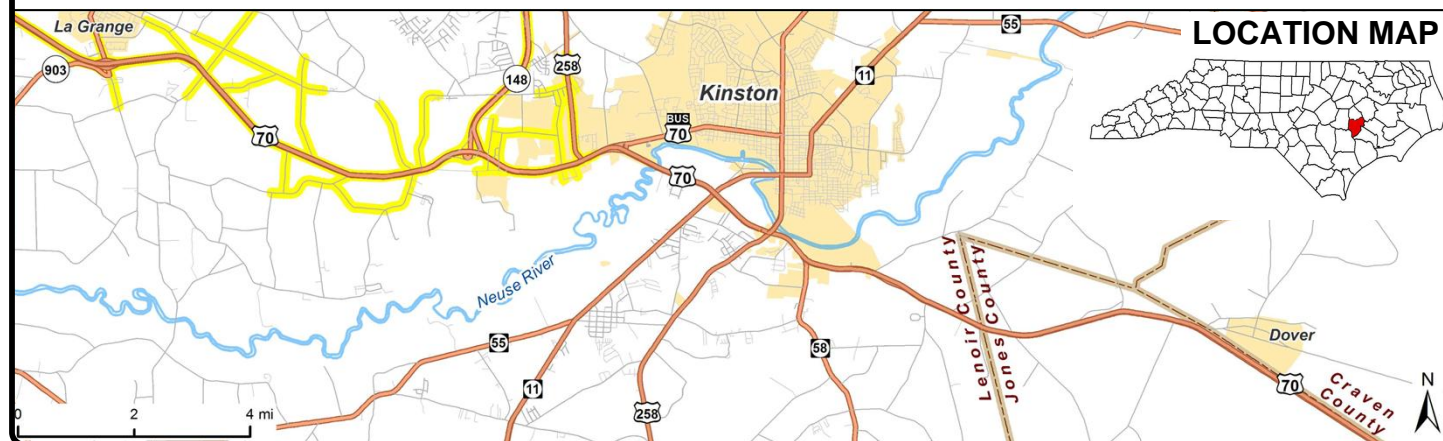
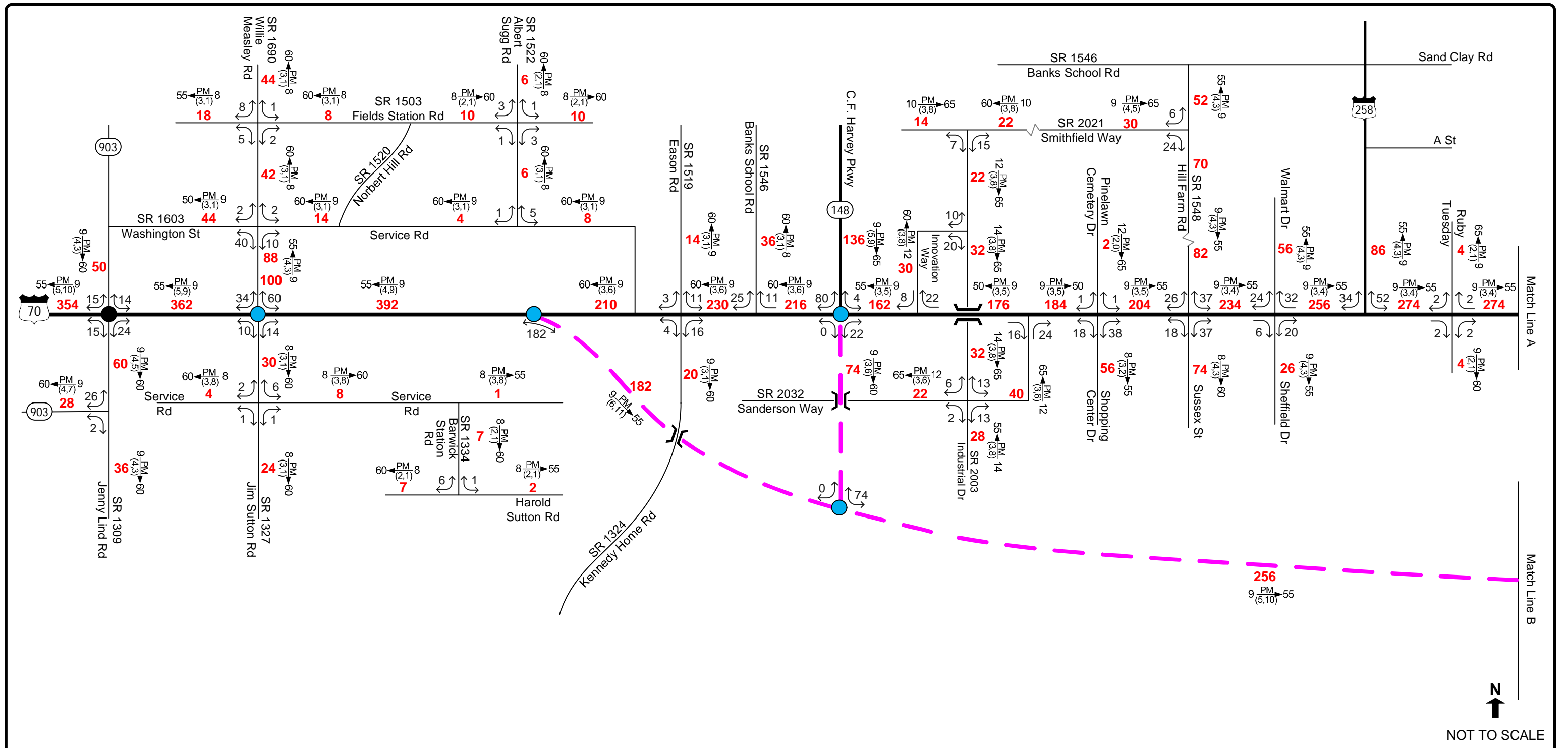
K Design Hour Volume Percentage

PM PM Peak Period

D Peak Hour Directional Split

→ Indicates Direction of D

(d,t) Duals, TT-STs (%)



2040

AVERAGE ANNUAL DAILY TRAFFIC

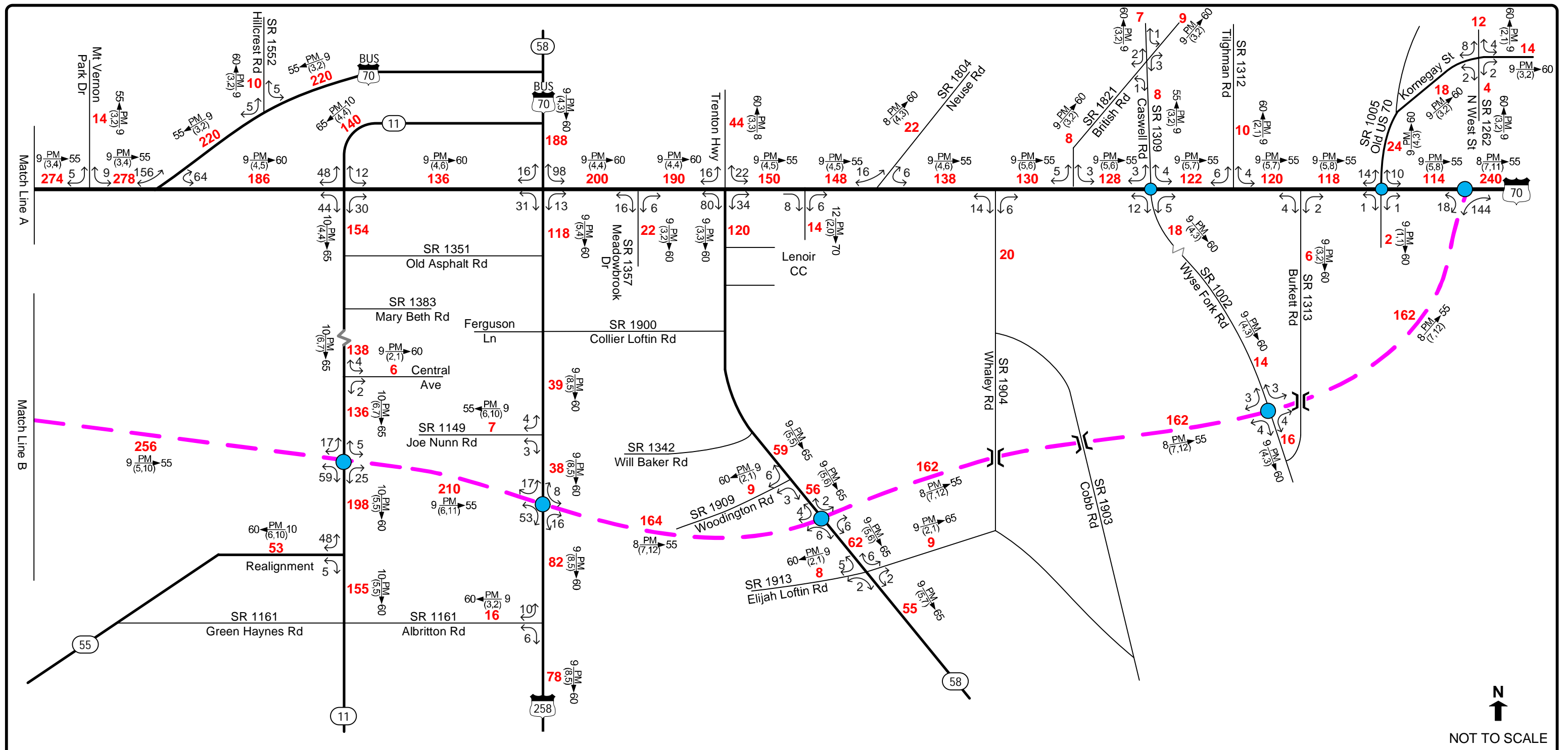
Scenario 26
Horizon Year

BUILD ALTERNATIVE 65
SHEET 1 OF 2

LEGEND

<p>### Vehicles Per Day (VPD) in 100s</p> <p>1- Less than 50 VPD</p> <p>X Movement Prohibited</p> <p>— Roadway</p> <p>● Future Interchange</p> <p>● Existing Interchange</p>	<p style="text-align: center;">K $\xrightarrow{\text{PM}}$ D (d, t)</p> <p>K Design Hour Volume Percentage</p> <p>PM PM Peak Period</p> <p>D Peak Hour Directional Split</p> <p>→ Indicates Direction of D</p> <p>(d,t) Duals, TT-STs (%)</p>	<p>TIP: R-2553</p> <p>WBS: 34460</p> <p>COUNTY: Lenoir</p> <p>DIVISION: 2</p> <p>DATE: November 7, 2016</p> <p>PREPARED BY: Parsons Brinckerhoff</p> <p>LOCATION: US 70 from west of NC 903 in La Grange to east of Old US 70 in Dover</p> <p>PROJECT: US 70 Kinston Bypass</p>
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NOT TO SCALE



2040

AVERAGE ANNUAL
DAILY TRAFFIC

Scenario 26
Horizon Year

BUILD ALTERNATIVE 65
SHEET 2 OF 2

LEGEND

<p>### Vehicles Per Day (VPD) in 100s</p> <p>1- Less than 50 VPD</p> <p>X Movement Prohibited</p> <p>— Roadway</p> <p>● Future Interchange</p> <p>● Existing Interchange</p>	<p style="text-align: center;">K PM D (d, t)</p> <p>K Design Hour Volume Percentage</p> <p>PM PM Peak Period</p> <p>D Peak Hour Directional Split</p> <p>→ Indicates Direction of D</p> <p>(d,t) Duals, TT-STs (%)</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">TIP: R-2553</td> <td style="padding: 2px;">WBS: 34460</td> </tr> <tr> <td style="padding: 2px;">COUNTY: Lenoir</td> <td style="padding: 2px;">DIVISION: 2</td> </tr> <tr> <td colspan="2" style="padding: 2px;">DATE: November 7, 2016</td> </tr> <tr> <td colspan="2" style="padding: 2px;">PREPARED BY: Parsons Brinckerhoff</td> </tr> <tr> <td colspan="2" style="padding: 2px;">LOCATION: US 70 from west of NC 903 in La Grange to east of Old US 70 in Dover</td> </tr> <tr> <td colspan="2" style="padding: 2px;">PROJECT: US 70 Kinston Bypass</td> </tr> </table>	TIP: R-2553	WBS: 34460	COUNTY: Lenoir	DIVISION: 2	DATE: November 7, 2016		PREPARED BY: Parsons Brinckerhoff		LOCATION: US 70 from west of NC 903 in La Grange to east of Old US 70 in Dover		PROJECT: US 70 Kinston Bypass	
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LOCATION: US 70 from west of NC 903 in La Grange to east of Old US 70 in Dover														
PROJECT: US 70 Kinston Bypass														

APPENDIX B

FORECAST DOCUMENTATION TABLES

- B1 – Data Collection
- B2 – Historical AADTs
- B3 – Growth Rate
- B4 – Past Forecasts
- B5 – Design Factors

B1. DATA COLLECTION TABLE - Tube Count

Location	Key Map #	Count Type	Date(s)	County	ATR Group	Seasonal Adjustment Factor	2015 AADT
US 70 West of Barwick Station Rd	101	48 hr Count	April 28,29,30, 2015	Lenoir	2	1.09,1.08,1.02	20,600
US 70 West of Pinelawn Cemetery Dr	102	48 hr Count	May 12,13,14, 2015	Lenoir	2	1.02,1.03,0.97	22,400
US 70 West of US 70 Business at Hillcrest Road	103	48 hr Count	May 12,13,14, 2015	Lenoir	2	1.02,1.03,0.97	36,700
US 70 West of NC 11	104	48 hr Count	May 5,6,7, 2015	Lenoir	2	1.02,1.03,0.97	26,800
US 70 East of Lenoir CC	105	48 hr Count	May 12,13,14, 2015	Lenoir	2	1.02,1.03,0.97	14,800
US 70 East of Burkett Road	106	48 hr Count	May 5,6,7, 2015	Jones	2	1.02,1.03,0.97	11,000
C.F. Harvey Parkway North of US 70	100	48 hr Count	May 13,14,15, 2015	Lenoir	2	1.03,0.97,0.83	2,800
NC 11/55 North of NC 11 and NC 55 Merge	107	48 hr Count	May 5,6,7, 2015	Lenoir	2	1.02,1.03,0.97	12,500
US 258 South of Joe Nunn Road	108	48 hr Count	May 5,6,7, 2015	Lenoir	2	1.02,1.03,0.97	7,100
NC 58 South of Collier Loftin Road	109	48 hr Count	April 28,29,30, 2015	Lenoir	2	1.09,1.08,1.02	7,000
Kennedy Home Road South of US 70	110	48 hr Count	April 15,16,17, 2015	Lenoir	1	0.98,0.95,0.87	1,400
Kennedy Home Road South of Barrus Rd	111	48 hr Count	April 20,21,22, 2015	Lenoir	1	1.01,0.99,0.98	1,500
Innovation Way North of US 70	112	48 hr Count	April 15,16,17, 2015	Lenoir	1	0.98,0.95,0.87	2,400
Elijah Loftin Road East of Whaley Road	113	48 hr Count	April 28,29,30, 2015	Lenoir	1	1.09,1.08,1.02	600
Cobb Road North of Elijah Loftin Road	114	48 hr Count	April 28,29,30, 2015	Lenoir	1	1.09,1.08,1.02	600
Alexander Rouse Road West of Parker Fork Road	115	48 hr Count	April 28,29,30, 2015	Lenoir	1	1.09,1.08,1.02	200
Clarence Potter Road West of US 258	147	48 hr Count	April 20,21,22, 2015	Lenoir	1	1.01,0.99,0.98	100
Lenoir Community College Exit, East of NC 58	148	48 hr Count	April 20,21,22, 2015	Lenoir	1	1.01,0.99,0.98	1,900
Lenoir Community College Entrance, East of NC 58	149	48 hr Count	April 20,21,22, 2015	Lenoir	1	1.01,0.99,0.98	1,300
Sanderson Way East of Industrial Way	166	48 hr Count	April 16,17,18, 2015	Lenoir	1	1.02,0.88	2,300
Leslie Stroud Road West of NC 11	176	48 hr Count	April 21,22,23, 2015	Lenoir	1	0.99,0.98,0.95	300

Total 21

B1. DATA COLLECTION TABLE - Turn Movement Count

Location	Key Map #	Count Type	Date	County
US 70 WB Ramps at NC 903	1A	13 hour TMC	April 14, 2015	Lenoir
US 70 EB Ramps at NC 903	1B	13 hour TMC	April 14, 2015	Lenoir
US 70 at SR 1603 Washington Street	2	13 hour TMC	April 15, 2015	Lenoir
US 70 at Jim Sutton Rd/Willie Measley Rd	3	13 hour TMC	April 15, 2015	Lenoir
US 70 at SR 1334 Barwick Station Road	5	13 hour TMC	April 15, 2015	Lenoir
US 70 at SR 1519 Eason Rd/SR 1324 Kennedy Home Rd	8	13 hour TMC	April 17, 2015	Lenoir
US 70 at SR 1546 Bank School Rd	9	13 hour TMC	April 17, 2015	Lenoir
Sanderson Way at SR 2003 Industrial Dr	11	13 hour TMC	April 16, 2015	Lenoir
US 70 at Pinelawn Cementary Dr/Shopping Center Dr	13	13 hour TMC	April 20, 2015	Lenoir
US 70 at SR 1548 Hill Fram Rd/Sussex St	14	13 hour TMC	April 21, 2015	Lenoir
US 70 at Walmart Dr/Sheffield Dr	15	13 hour TMC	April 22, 2015	Lenoir
US 70 at US 258 North	16	13 hour TMC	April 22, 2015	Lenoir
US 70 at Mt Vernon	17	13 hour TMC	April 23, 2015	Lenoir
US 70 - US 258 BUS at Hillcrest Rd	20	13 hour TMC	April 17, 2015	Lenoir
US 70 at NC 55/11	21	13 hour TMC	April 24, 2015	Lenoir
US 70 at US 70 BUS / US 258	22	13 hour TMC	May 6, 2015	Lenoir
US 70 at NC 58/Trenton Rd	24	13 hour TMC	May 5, 2015	Lenoir
US 70 at Lenoir CC	25	13 hour TMC*	May 6, 2015	Lenoir
US 70 at SR 1804 Neuse Rd	26	13 hour TMC	May 7, 2015	Lenoir
US 70 at SR 1903 Whaley Rd	27	13 hour TMC	April 28, 2015	Lenoir
US 70 at SR 1309 Caswell Rd/SR 1002 Wyse Fork Rd	29	13 hour TMC	May 8, 2015	Jones
US 70 at Old Dover Rd	32	13 hour TMC	May 8, 2015	Jones
NC 903 at SR 1324 Jenny Lind Rd	33	13 hour TMC	April 14, 2015	Lenoir
SR 1334 Barwick Station Rd / SR 1330 Harold Sutton	34	13 hour TMC	April 16, 2015	Lenoir
SR 1690 Willie Measley Rd / SR 1603 Field Station Rd	35	13 hour TMC	April 15, 2015	Lenoir
SR 1548 Hill Farm Rd / SR 2021 Parrot Dickerson Rd	36	13 hour TMC	April 21, 2015	Lenoir
NC 11/55 at SR 1341 Tyree Rd	40	13 hour TMC	April 24, 2015	Lenoir
NC 11 at SR 1161 Green Haynes Rd / SR 1161 Albritton Rd	41	13 hour TMC	May 5, 2015	Lenoir
US 258 at SR 1900 Collier Loftin Rd / Ferguson Ln	45	13 hour TMC	April 28, 2015	Lenoir
NC 58 at SR 1342 Will Baker Rd	51	13 hour TMC	May 6, 2015	Lenoir
SR 1821 British Rd at SR 1309 Caswell Rd	54	13 hour TMC	May 8, 2015	Jones
SR 1548 Hill Farm Rd at SR 1546 Banks School Rd	62	13 hour TMC	April 22, 2015	Lenoir
US 70 EB Left -U- East Sanderson	66B	13 hour TMC*	April 16, 2015	Lenoir
US 258 at SR 1546 Banks School Rd	67	13 hour TMC	April 23, 2015	Lenoir
US 70 at SR 1552 Hillcrest Rd	92	13 hour TMC	April 23, 2015	Lenoir
US 258 at Road A	98	13 hour TMC	April 24, 2015	Lenoir
Total		36		

* Turns only, throughs not counted

B2. HISTORIC OVERVIEW TABLE: 1994 - 2014

NCDOT CVRG VLM ID	LOCATION																					Project	Base Yr	
		1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Count 2015	Forecast 2015
a	US 70 - East to West																							
5300047	US 70 West of NC 903	12,000	13,900	13,900	13,000	14,000	16,000	19,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	17,000	17,000	18,000	16,000		16,000	16,600
5300092	US 70 West of Washington Street	12,100	13,500	14,300	12,100	14,000	16,000	16,000	16,000	16,000	16,000	16,000	17,000	16,000	16,000	16,000	16,000	17,000	17,000	18,000	17,000	18,000	19,400	16,800
5300089	US 70 East of Jim Sutton Road / Measley Road	15,600	16,700	16,600	17,100	17,000	19,000	17,000	18,000	18,000	19,000	18,000	20,000	19,000	19,000	20,000	18,000	19,000	19,000	23,000	19,000		20,600	19,700
5300048	US 70 East of Albert Sugg Road	13,600	15,200	16,000	16,900	17,000	18,000	18,000	18,000	20,000	18,000	19,000	19,000	18,000	18,000	19,000	17,000	18,000	18,000	20,000	18,000	19,000	-	20,100
5300049	US 70 West of Hill Farm Road			18,600	19,300		20,000	20,000	21,000		23,000	21,000	23,000	22,000	22,000	23,000	20,000	22,000	23,000	24,000	23,000		27,900	25,400
5300034	US 70 West of US 258	24,000	30,300	23,900		21,000	26,000	30,000	27,000	26,000	28,000	27,000	29,000	29,000	28,000	30,000	27,000	28,000	30,000	31,000	30,000	33,000	37,000	32,600
5300033	US 70-258 East of US 258	33,800	35,700	36,600	37,700	37,000	39,000	39,000	37,000	41,000	41,000	44,000	43,000	39,000	40,000	44,000	37,000	39,000	43,000	43,000	39,000		44,200	39,600
5300029	US 70-258 Business East of US 70-258 Bypass	19,700	21,300	21,100	19,700	22,000	23,000	27,000	22,000	23,000	22,000	23,000	21,000	24,000	22,000	20,000	20,000	19,000	18,000	22,000	21,000		19,000	19,800
5300030	US 70-258 BYP, East of US 70-258 BUS	23,200	36,300		23,000	28,000	28,000	29,000	27,000			29,000		27,000		29,000		26,000		28,000		27,000	28,700	29,000
5300076	US 70-258 Bypass West of NC 11	25,300	27,300	27,400	27,000	26,000	29,000	29,000	28,000	29,000	20,000	29,000	30,000	28,000	29,000	29,000	26,000	27,000	27,000	29,000	28,000	27,000	27,900	29,000
5300027	US 70-258 Bypass East of NC 11	15,600	18,000	17,000	16,400	17,000	20,000	22,000	19,000	21,000	21,000	20,000	18,000	18,000	21,000	17,000	18,000	19,000	16,000	18,000	19,000		19,400	19,000
5300018	US 70/NC 58, East of US 258	28,300	29,800	29,500	30,100	29,000	31,000	28,000	28,000	29,000	30,000	28,000	32,000	28,000	28,000	30,000	26,000	27,000	29,000	25,000	27,000	26,000	28,200	26,600
5300020	US 70-258 Bypass West of NC 58	22,300	25,000	26,000	27,100	26,000	27,000	26,000	25,000	27,000	28,000		30,000	26,000	26,000	27,000	25,000	25,000	27,000	23,000	25,000	24,000	26,200	25,600
5300021	US 70-258 Bypass East of NC 58	14,400	15,500	17,500	18,800	17,000	19,000	18,000	17,000	18,000	18,000	20,000	20,000	17,000	18,000	18,000	17,000	17,000	18,000	15,000	16,000		16,600	16,400
5300050	US 70-258 Bypass West of Whaley Road				13,100		14,000	15,000	14,000	15,000	14,000	14,000	15,000	13,000	15,000	14,000	14,000	13,000	14,000	13,000	14,000	13,000	15,000	14,800
5100001	US 70 West of Wyse Fork Road						12,000	13,000	13,000	13,000	13,000	14,000	13,000	12,000	13,000	13,000	12,000	13,000	12,000	12,000	12,000		14,000	13,600
5100032	US 70 East of Wyse Fork Road						10,000	12,000	11,000	11,000	11,000	11,000	12,000	10,000	12,000	12,000	11,000	12,000	11,000	11,000	10,000	10,000	13,300	12,800
5100031	US 70 East of Burkett Road						11,000	12,000	11,000	9,600	11,000	9,600	11,000	9,500		10,000	11,000	9,900	11,000	11,000	11,000		11,000	12,200
b	US 258																							
5300083	US 258, N of SR 1546 (Banks School Rd)	11,900	14,500	11,300	9,300		12,000	13,000	13,000	14,000	15,000	15,000	17,000	15,000	15,000	16,000	14,000	14,000	16,000	14,000	15,000		14,200	14,000
5300032	US 258 North of US 70	11,600	13,500	11,800	14,900	11,000	11,000	13,000	12,000	15,000	13,000	13,000	15,000	13,000	13,000	13,000	11,000	11,000	11,000	12,000	11,000	11,000	12,800	11,800
5300019	US 258, South of US 70-258 BYP	12,800	12,900	13,000	12,000	12,000	12,000	11,000	11,000	10,000	11,000	10,000	12,000	10,000	10,000	11,000	9,300	10,000	11,000	9,500			11,200	10,600
5300079	US 258, North of SR 1900 (Collier Loftin Rd)	9,400	10,500	10,300	9,200	10,000	12,000	10,000	9,600	9,600	10,000	9,500	10,000	9,300	9,200	9,700	9,500	9,100	10,000	8,500	8,700		10,300	10,100
5300078	US 258, South of SR 1900 (Collier Loftin Rd)	9,000	10,600	9,800	8,900	9,800	11,000	9,400	9,600	9,500	10,000	9,600	9,700	9,100	9,100	9,600	9,500	9,600	10,000	8,500	8,600	8,700	10,100	10,000
5300035	US 258, North of SR 1342 (Will Baker Rd)	7,700	8,100	8,400	8,000	8,500	9,300	9,000	99,000	8,500	7,000	8,300	9,100	8,600	8,500	8,900	9,200	9,300	8,700	8,200	8,000		-	10,000
5300036	US 258, South of SR 1341 (Tyree Rd)	7,400	7,900	8,300	8,400	8,500	9,200	8,400	8,500	8,700	8,700	7,800	8,600	7,900	8,200	8,500	8,700	8,000	8,500	8,000	8,000	8,400	-	7,400
5300099	US 258, South of SR 1161 (Albritton Rd)	5,900	6,700	7,200	7,100	7,200	7,600		7,100	7,100	7,600	6,600	6,900	6,900	6,600	7,600	7,700	7,100	7,000	6,900	6,700		-	7,000
c	NC 11 / NC 55																							
5300026	NC 11/ NC 55 North of US 70	12,200	14,100	12,100	13,900	12,000	13,000	13,000	13,000	14,000	17,000	13,000	13,000	12,000	13,000	12,000	12,000	12,000	11,000	13,000	13,000	11,000	12,400	13,000
5300028	NC 11-55, South of US 70-258 BYP	17,600	18,600	18,600	16,400	17,000	18,000	19,000	18,000	20,000		19,000	18,000	17,000	19,000		17,000		16,000	17,000	17,000	16,000	16,600	17,000
5300037	NC 11/ NC 55 North of NC 11 and NC 55 Merge	11,000	12,000	12,100	12,000	13,000	14,000		13,000	14,000	14,000	14,000	15,000	15,000	14,000	15,000	14,000		14,000	15,000	14,000		12,500	12,600
5300039	NC 11 South of NC 11 / NC 55 Merge	8,200	9,400	9,200	8,600	8,800	9,500			10,000	11,000	10,000	11,000	11,000	10,000	11,000	11,000	9,800	12,000	11,000	10,000		9,600	10,400
5300068	NC 11, North of SR 1161 (Albritton Rd)	7,200	7,300	8,300	7,300	8,100	8,400			9,400	10,000	9,700	11,000	10,000	9,800	11,000	9,600	9,000	10,000	10,000	9,500	9,700	10,000	10,400
5300067	NC 11, South of SR 1161 (Albritton Rd)	6,800	7,100	8,100	8,200	7,800	8,400			9,200	10,000	9,000	10,000	10,000	9,400	10,000	9,300	8,800	9,900	9,800	10,000		9,600	10,000
5300038	NC 55 South of NC 11 / NC 55 Merge	4,300	4,100	4,400	4,800	4,700	5,600		3,600	4,900	5,000	4,700		5,100	4,700	5,100	5,100	4,800	4,900	5,700	4,600	4,800	4,400	4,800
d	NC 58																							
5300017	US 70-258 BUS/NC 58, North of US 70-258 BYP									16,000	17,000	16,000	16,000	15,000	16,000	14,000	14,000	14,000	14,000	14,000	13,000		16,100	15,000
5300022	NC 58, South of US 70	8,800	10,600	9,500	9,000	10,000	8,000	7,800	7,500	8,100	8,500	9,700	12,000	10,000	9,400	11,000	9,100	9,300	11,000	9,000	10,000	11,000	11,200	11,400
5300053	NC 58, North of SR 1913 (Elijah Loftin Rd)	5,100	6,200	5,200	5,700	5,900	5,900	5,800	5,700	6,000	5,900	6,500	5,800	5,000	5,600	6,000	5,300	5,100	5,500	5,200	5,100		-	5,600
5300091	NC 58, South of SR 1913 (Elijah Loftin Rd)	4,300	4,500	4,300	5,500	4,600	4,900	4,900		5,000	4,900	5,400	4,800	4,700	4,600	4,900	4,100	4,300	5,500	4,200	5,200		-	4,900
e	NC 903																							
5300104	NC 903, North of SR 1378 (Packhouse Rd)	2,800	2,800	3,100	2,500	3,100	6,100		3,400	3,300	3,500	3,500	4,000	3,700	3,600	3,800	3,500	3,200	3,800	3,700	3,700	3,400	4,000	4,000
5309018	NC 903, South of US 70																3,900			4,000		4,400	4,100	4,000

B2. HISTORIC OVERVIEW TABLE: 1994 - 2014

NCDOT CVRG VLM ID	LOCATION																					Project	Base Yr		
		1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Count 2015	Forecast 2015	
f	Local Roads Intersecting US 70																								
5301534	SR 1603 (Washington St), North of US 70		4,300		4,000		4,500				4,300		4,400		3,800		4,000		4,100		3,900		4,600	4,000	
5301532	SR 1327 (Jim Sutton Rd), South of US 70		800		680		760		900		1,000		1,000		880		1,000		970				1,500	1,400	
5303416	SR 1520 (Norbert Hill Rd), North of US 70	400		560		700		560			510		490				400		540		470		-	600	
5301556	SR 1522 (Albert Sugg Rd), North of US 70		280		230		260		260	190		210		330		230		220		270		200		-	400
5301560	SR 1330 (Harold Sutton Rd), South of US 70		650		600		590		650		610		700				620		650		750		-	400	
5301555	SR 1519 (Eason Rd), North of US 70		1,000		1,000		1,100		1,000		1,000		930		1,000		880		1,000		940		1,100	1,100	
5301558	SR 1324 (Kennedy Home Rd), South of US 70		1,600		1,600		1,700		1,900		1,700		2,000		2,000		1,800		1,700		1,800		1,700	1,700	
5301557	SR 1546 (Banks School Rd), North of US 70		1,300		1,400		1,700		1,800		2,000		2,000		1,900		1,500		1,600		1,500		1,200	1,500	
5301744	SR 1804 (Neuse Rd), North of US 70		2,200		2,400		2,900		2,200		2,400		2,300		2,000		2,100		2,200				1,700	1,800	
5301743	SR 1903 (Cobb Rd), South of US 70		1,500		1,700		1,800		1,700	1,600		1,700		1,700		1,800		1,500		1,500			1,900	1,800	
5301618	SR 1821 (British Rd), North of US 70										800		780		740		810		710				600	600	
5101502	SR 1309 (Caswell Station Rd), North of US 70									580		490		500		410		380		450		300	500	400	
5101504	SR 1002 (Wyse Fork Rd), South of US 70						1,500		1,500		1,400		1,500		1,500		1,300		1,200		1,300		1,700	1,600	
5101503	SR 1312 (Tilghman Rd), North of US 70										520		400		440		380		350		340		-	400	
5101562	SR 1005 (Old US Hwy 70), North of US 70										2,100		2,400		2,200		2,400		2,200		2,100		1,600	1,700	
g	Other Local Roads																								
5303414	SR 1309 (Jenny Lind Rd), South of NC 903								1,700		1,500		1,900		1,700		1,500		1,600		1,600	1,600	1,800		
5301533	SR 1690 (Willie Measley Rd), South of SR 1503				1,900		2,200		2,500	2,100		1,900		2,300		2,900		2,400		2,700			2,000	2,100	
5301679	SR 1548 (Hill Farm Rd), North of SR 2021				3,600		4,600		3,500		4,800		5,100		5,000		6,000		5,900		5,400		4,800	4,800	
5301742	SR 1903 (Cobb Rd), South of SR 1904		950		1,000		1,100		1,100		1,000		1,000		960		1,100		940		850		600	600	
5101501	SR 1310 (British Rd), East of SR 1309										740		710		810		770		680		1,200		600	600	
5101500	SR 1309, North of SR 1310 (British Rd)								370		310		360		230		290		290		230		200	400	
5301731	SR 1351 (Old Asphalt Rd), East of NC 11-55		1,900		1,700		1,800		1,800	690		880		870		1,000		710		670			-	1,700	
5301730	SR 1351 (Old Asphalt Rd), West of US 258		1,400		1,500		1,400		920		590		560		680		520		410		380		-	1,700	
5301678	SR 1546 (Banks School Rd), West of US 258				5,900		5,600		6,700	6,900		7,400		7,700		8,800		7,600		8,700		8,700	8,300	8,200	
5301728	SR 1357 (Meadowbrook Dr), West of NC 58		1,000		1,000		1,300		930		770		1,000		940		880		910		850		-	1,800	
5301677	SR 1342 (Central Ave), East of NC 11-55		230		300		400		200	340		290		350		370		340		340			-	400	
5301739	SR 1342 (Will Baker Rd), West of NC 58		1,400		1,600		1,900		1,900		1,800		1,800		1,500		1,500		1,700				1,500	1,500	
5301735	SR 1341 (Tyree Rd), East of NC 11-55		2,200		2,400		2,800		2,400		2,800		2,900		2,800		2,800		3,000		2,400		2,600	3,000	
5301564	SR 1161 (Green Haynes Rd), East of NC 55		600		750		1,000		800		880		800		770		800		760		760		-	800	
5303466	SR 1161 (Green Haynes Rd), West of NC 11										2,000		1,900		1,900		1,900		1,800		1,900		1,900	2,000	
5301669	SR 1161 (Albritton Rd), East of NC 11		900		1,100		1,300			1,200		1,200		1,400		1,300		1,200		1,300			1,200	1,200	
5301603	SR 1161 (Albritton Rd), West of US 258		440		420		500		500	530		470		670		630		550		590			-	1,200	
5303460	SR 1149 (Joe Nunn Rd), West of US 258										1,300		1,400		1,100		1,200		1,200		970		-	-	
5301562	SR 1157 (N Croom Bland Rd), North of NC 55		70		60		50		50	40		80		50				40		50		60		-	100
5301741	SR 1909 (Woodington Rd), West of NC 58				950		1,000		940		860		840				810		880		790		-	800	
5301737	SR 1900 (Collier Loftin Rd), East of US 258		1,600		1,300		2,400		1,400	1,500		1,500		1,900		1,900		1,300		1,200			1,700	1,700	
5301738	SR 1900 (Collier Loftin Rd), West of NC 58		1,000		900		1,600		990	1,200		1,400		1,600		1,300		1,000		860		1,300	-	1,700	
5301616	SR 1913 (Elijah Loftin Rd), East of NC 58		640		850		1,200		940	1,100		890		1,000		1,100		830		850		820	-	700	
5301615	SR 1913 (Elijah Loftin Rd), West of NC 58		1,100		850		1,200		1,000	1,100		1,000		1,200		1,300		850		930			-	800	
2401686	SR 1005, East of SR 1268 (Carmichael Ave)									2,000		1,900		1,800				1,900		1,800		1,700	-	1,400	
2401639	SR 1262 (N West St), North of SR 1005											1,600		1,600		1,400		1,300		1,300		1,200	-	800	
2401638	SR 1262 (N West St), North of SR 1270											280		440		200		250		130		130	-	200	

2015 Project Specific Turn Movement Counts factored to AADT estimates

While comparing a row with NCDOT Historical AADT, note that count and forecasts are in close proximity but not at exact location of NCDOT's count station.

B3. GROWTH RATE COMPARISON - Historic, Model and Forecast

KEY LOCATIONS	Annualized Growth Rate based on Historic AADT Counts			Annualized Growth Rate based on Travel Demand Model Volumes			Annualized Growth Rate Utilized in No Build Forecast		
	1994 - 2004 (10 Yr)	2004 - 2014 (10 Yr)	1994 to 2004 (20 yr)	2011	2040	2011 to 2040	2015	2040	2015 to 2040
US 70 - East to West									
US 70 West of NC 903	2.9%			17,500	35,300	2.4%	16,600	35,400	3.1%
US 70 West of Washington Street	2.8%	1.2%	2.0%	19,500	37,300	2.3%	16,800	35,600	3.0%
US 70 East of Jim Sutton Road / Measley Road	1.4%			21,400	38,900	2.1%	19,700	38,200	2.7%
US 70 East of Albert Sugg Road	3.4%	0.0%	1.7%	21,500	39,000	2.1%	20,100	38,600	2.6%
US 70 West of Hill Farm Road	1.6%			17,100	28,900	1.8%	25,400	36,200	1.4%
US 70 West of US 258	1.2%	2.0%	1.6%	28,100	39,100	1.1%	32,600	43,000	1.1%
US 70-258 East of US 258	2.7%			33,300	45,000	1.0%	39,600	49,000	0.9%
US 70-258 Business East of US 70-258 Bypass	1.6%			18,800	20,700	0.3%	19,800	22,400	0.5%
US 70-258 BYP, East of US 70-258 BUS	2.3%	-0.7%	0.8%	25,700	37,500	1.3%	29,000	40,200	1.3%
US 70-258 Bypass West of NC 11	1.4%	-0.7%	0.3%	25,800	37,600	1.3%	29,000	40,200	1.3%
US 70-258 Bypass East of NC 11	2.5%			17,600	27,700	1.6%	19,000	30,400	1.9%
US 70/NC 58, East of US 258	-0.1%	-0.7%	-0.4%	20,100	32,900	1.7%	26,600	37,200	1.4%
US 70-258 Bypass West of NC 58	2.7%	-1.9%	0.4%	20,100	32,900	1.7%	25,600	36,200	1.4%
US 70-258 Bypass East of NC 58	3.3%			15,500	28,300	2.1%	16,400	29,400	2.4%
US 70-258 Bypass West of Whaley Road		-0.7%	0.2%	14,600	27,400	2.2%	14,800	27,600	2.5%
US 70 West of Wyse Fork Road				14,100	27,100	2.3%	13,600	26,400	2.7%
US 70 East of Wyse Fork Road		-0.9%		12,900	25,900	2.4%	12,800	25,400	2.8%
US 70 East of Burkett Road				13,500	27,300	2.5%	12,200	24,400	2.8%
US 258									
US 258, N of SR 1546 (Banks School Rd)	2.3%			11,500	13,300	0.5%	14,000	15,800	0.5%
US 258 North of US 70	1.1%	-1.7%	-0.3%	10,100	11,500	0.4%	11,800	13,200	0.4%
US 258, South of US 70-258 BYP	-2.4%			9,400	10,600	0.4%	10,600	13,000	0.8%
US 258, North of SR 1900 (Collier Loftin Rd)	0.1%			6,500	7,600	0.5%	10,100	12,400	0.8%
US 258, South of SR 1900 (Collier Loftin Rd)	0.6%	-1.0%	-0.2%	6,100	7,100	0.5%	10,000	12,300	0.8%
US 258, North of SR 1342 (Will Baker Rd)	0.8%			5,800	6,800	0.6%	10,000	12,300	0.8%
US 258, South of SR 1341 (Tyree Rd)	0.5%	0.7%	0.6%	6,800	8,000	0.6%	7,400	9,200	0.9%
US 258, South of SR 1161 (Albritton Rd)	1.1%			7,400	8,600	0.5%	7,000	8,800	0.9%
NC 11 / NC 55									
NC 11/ NC 55 North of US 70	0.6%	-1.7%	-0.5%	10,600	11,300	0.2%	13,000	14,200	0.4%
NC 11-55, South of US 70-258 BYP	0.8%	-1.7%	-0.5%	19,700	22,600	0.5%	17,000	22,000	1.0%
NC 11/ NC 55 North of NC 11 and NC 55 Merge	2.4%			14,600	17,500	0.6%	12,600	17,900	1.4%
NC 11 South of NC 11 / NC 55 Merge	2.0%			10,400	13,100	0.8%	10,400	15,500	1.6%
NC 11, North of SR 1161 (Albritton Rd)	3.0%	0.0%	1.5%	10,000	12,000	0.6%	10,400	15,500	1.6%
NC 11, South of SR 1161 (Albritton Rd)	2.8%			9,100	12,000	1.0%	10,000	15,000	1.6%
NC 55 South of NC 11 / NC 55 Merge	0.9%	0.2%	0.6%	5,100	5,500	0.3%	4,800	5,200	0.3%
NC 58									
US 70-258 BUS/NC 58, North of US 70-258 BYP				13,100	16,700	0.8%	15,000	18,800	0.9%
NC 58, South of US 70	1.0%	1.3%	1.1%	6,900	10,600	1.5%	11,400	12,400	0.3%
NC 58, North of SR 1913 (Elijah Loftin Rd)	2.5%			5,600	5,800	0.1%	5,600	6,200	0.4%
NC 58, South of SR 1913 (Elijah Loftin Rd)	2.3%			4,500	4,600	0.1%	4,900	5,400	0.4%
NC 903									
NC 903, North of SR 1378 (Packhouse Rd)	2.3%	-0.3%	1.0%	4,400	4,800	0.3%	4,000	4,800	0.7%
NC 903, South of US 70				5,700	6,300	0.3%	4,000	5,600	1.4%

B4. COMPARISON WITH PREVIOUS FORECASTS

KEY LOCATIONS	R-2544 Goldsboro Bypass		R-2719A Crescent Road June 2004		NC 11-NC 55 Bypass Feasibility Study (FS-0802A)		Kinston Area Comprehensive Transportation Plan (not fiscally 2000)		R-2553 Kinston Bypass July 2009			R-2553 Kinston Bypass 2012 update			R-2553 Kinston Bypass 2015 update	
	1998	2018	2004	2030	2008	2030 NO Build (includes R-2553 Southern)	2008	Existing Network (with CF Harvey)	2008	2020	2035	2012	2020	2040	2015	2040
US 70 - West to East																
US 70 West of NC 903	32,600	59,200	n/a	n/a	n/a	n/a	18,000	65,500	16,000	37,800	55,200	16,100	25,000	36,000	16,600	35,400
US 70 East of Washington Street	n/a	NA	22,500	43,400	n/a	n/a	22,000	64,100	20,000	43,000	61,400	19,600	32,000	41,800	20,200	39,200
US 70 West of C.F. Harvey Pkwy	n/a	NA	34,200	32,600	n/a	n/a	28,000	64,100	32,000	40,400	79,200	18,400	29,000	37,000	21,200	39,000
US 70 West of US 258	n/a	NA	n/a	32,600	n/a	n/a	n/a	32,400	n/a	n/a	52,800	31,600	35,000	46,000	32,600	43,000
US 70-258 East of US 258	n/a	NA	42,800	35,100	n/a	n/a	40,000	57,100	40,000	50,600	62,600	30,000	42,000	54,600	39,600	49,000
US 70-258 Bypass East of NC 11	n/a	NA	n/a	n/a	21,000	19,300	21,000	40,000	20,800	35,200	46,000	20,800	22,400	32,000	19,000	29,600
US 70-258 Bypass West of NC 58	n/a	NA	n/a	n/a	28,700	27,200	27,000	51,100	27,000	42,300	54,600	27,000	28,800	38,200	25,600	35,000
US 70 East of Wyse Fork Road	n/a	NA	n/a	n/a	n/a	n/a	15,000	31,900	12,000	24,800	35,000	13,400	18,000	27,200	12,800	25,000
CF Harvey Parkway																
CF Harvey Parkway Extension (US 70 to US 258)	n/a	n/a	n/a	20,400	n/a	n/a	n/a	45,600	n/a	27,600	43,400	3,000	4,400	6,400	2,800	9,400
CF Harvey Parkway east of US 258	n/a	n/a	5,600	23,400	n/a	n/a	n/a	33,000	4,800	28,300	47,200	6,000	7,200	10,000	n/a	n/a
CF Harvey Parkway west of NC 58	n/a	n/a	n/a	n/a	n/a	n/a	n/a	25,400	2,000	16,800	27,800	2,400	7,600	10,600	n/a	n/a
Roads north of US 70																
US 258 North of US 70	n/a	n/a	15,000	32,400	n/a	n/a	14,000	45,600	16,200	21,400	28,200	11,600	11,000	13,000	11,800	13,200
US 70 Bus Vernon Avenue	n/a	n/a	n/a	n/a	n/a	n/a	22,000	40,900	22,400	24,800	30,000	18,800	20,600	24,200	19,800	22,400
NC 55/ NC 11 Old Pink Hill Road	n/a	n/a	n/a	n/a	15,000	24,200	13,000	42,400	13,400	21,500	28,000	14,000	14,000	16,000	13,000	14,200
US 258 /Queen Street	n/a	n/a	n/a	n/a	17,600	26,200	16,000	57,200	16,200	31,200	44,000	16,000	17,200	19,200	15,000	18,800
Roads south of US 70																
NC 55/ NC 11 Old Pink Hill Road	n/a	n/a	n/a	n/a	18,200	22,400	19,000	43,200	19,200	29,100	37,000	17,600	19,000	22,400	17,000	22,000
US 258	n/a	n/a	n/a	n/a	11,000	20,200	10,000	39,600	10,600	25,500	37,400	10,200	11,000	13,400	10,600	13,000
NC 58	n/a	n/a	n/a	n/a	10,700	8,800	9,400	22,400	10,400	15,700	20,000	11,400	13,000	14,600	11,400	12,400

Source:

R-2554 Goldsboro Bypass - from public hearing map

R-2719A C.F. Harvey Parkway- June 2004

FS - 0802A NC 11- NC 55 Bypass Feasibility Study - October 2010

Kinston Area Comprehensive Transportation Plan - February 2008

R-2553 Kinston Bypass- July 2009

R-2553 Kinston Bypass- July 2012

B5. DESIGN FACTOR TABLE (D, K and HV)

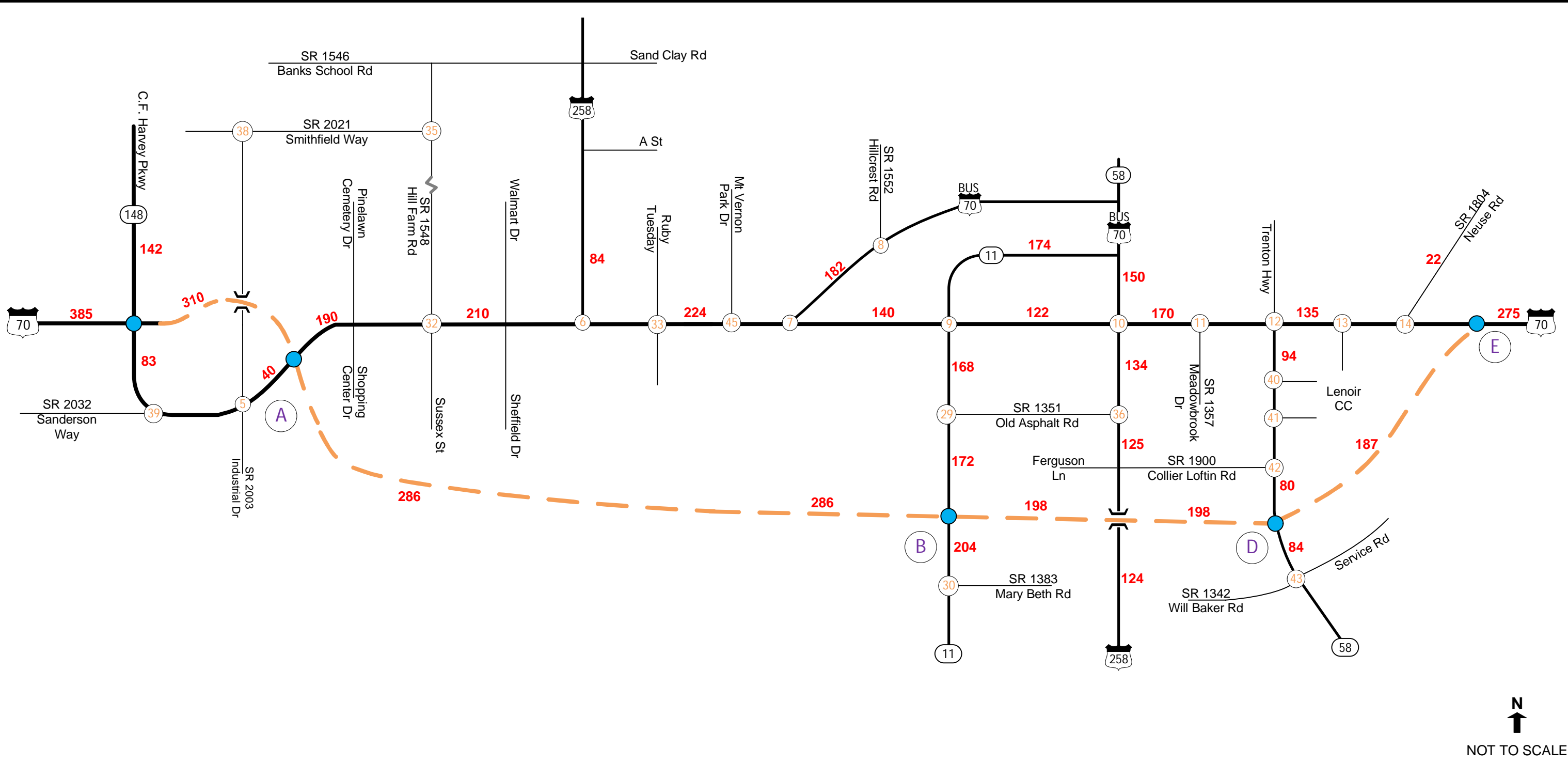
Location	AADT	D – Directional Distribution			K – Peak Hour Factor			Heavy Vehicles - (Dual / TTST)		
	2015 Class Count	2012 TIP Project R-2553 Forecast	2015 Class Count	2015 Selected BY NB Value	2012 TIP Project R-2553 Forecast	2015 Class Count	2015 Selected BY NB Value	2012 TIP Project R-2553 Forecast	2015 Class Count	2015 Selected BY NB Value
US 70 West of SR 1334 (Barwick Station Rd)	20,600	60%	55%	55%	9%	8.0%	9%	5 / 10	4.3 / 8.0	4 / 8
US 70 West of Pinelawn Cemetery Dr	22,400	55%	54%	50%	10%	8.1%	9%	5 / 8	3.8 / 6.5	4 / 6
US 70-US 258 Bypass West of US 70 Bus	36,700	55%	51%	55%	9%	7.6%	9%	5 / 5	3.2 / 4.9	4 / 5
US 70-US 258 Bypass East of US 70 Bus	26,800	60%	53%	55%	9%	8.0%	9%	6 / 7	3.6 / 5.2	5 / 6
US 70 East of Lenoir CC	14,800	55%	53%	55%	9%	7.6%	8%	5 / 8	9.1 / 9.0	6 / 9
US 70 East of SR 1313 (Burkett Road)	11,000	60%	50%	55%	9%	8.0%	8%	5 / 10	7.0 / 12.0	7 / 12
C.F. Harvey Parkway North of US 70	2,800	55%	61%	60%	10%	9.7%	9%	8 / 6	4.8 / 8.4	5 / 9
NC 11/55 North of NC 11 and 55 Merge	12,500	65%	61%	65%	9%	8.0%	10%	4 / 4	5.6 / 8.1	6 / 7
US 258 South of SR 1149 (Joe Nunn Road)	7,100	60%	64%	60%	9%	8.8%	9%	5 / 6	7.4 / 5.3	8 / 5
NC 58 South of SR 1900 (Collier Loftin Road)	7,000	65%	73%	65%	9%	8.9%	9%	3 / 3	3.2 / 4.2	4 / 4
SR 1324 (Kennedy Home Road) South of US 70	1,400	-	73%	60%	-	8.3%	9%	-	4.4 / 1.2	3 / 1
SR 1324 (Kennedy Home Road) South of SR 1336 (Barrus Road)	1,500	-	78%	60%	-	8.7%	9%	-	3.1 / 0.8	3 / 1
SR 2002 (Innovation Way) North of US 70 *	2,400	-	78%	65%	-	10.8%	12%	-	3.0 / 7.9	3 / 8
SR 1913 (Elijah Loftin Road) East of SR 1904 (Whaley Road)	600	-	77%	75%	-	12.1%	12%	-	3.2 / 0.4	3 / 1
SR 1903 (Cobb Road) North of SR 1913 (Elijah Loftin Road)	600	-	73%	70%	-	8.8%	9%	-	4.7 / 0.6	5 / 1
SR 1911 (Alexander Rouse Rd) West of SR 1912 (Parker Fork Rd)	200	-	58%	-	-	8.4%	-	-	9.1 / 1.0	9 / 1
SR 1139 (Clarence Potter Road) West of US 258	100	-	88%	60%	-	29.1%	9%	-	1.1 / 0	1 / 1
Exit of Lenoir CC East of NC 58	1,900	-	100%	100%	-	4.1%	-	-	1.9 / 0	2 / 0
Entrance of Lenoir CC East of NC 59	1,300	-	100%	100%	-	11.1%	-	-	2.9 / 6.3	3 / 6
SR 2032 (Sanderson Way) East of SR 2003 (Industrial Way) *	2,300	-	77%	70%	-	12.6%	12%	-	3 / 6	3 / 8
SR 1158 (Leslire R. Stroud Road) West of NC 11	300	-	60%	60%	-	8.9%	9%	-	7.1 / 0.9	2 / 1

* Peak is during 5:15 AM-6:15 AM in morning and 2:15 PM-3:15 PM in afternoon due to adjacent industrial employment generator.

APPENDIX C

TRAFFIC ESTIMATES FOR SHALLOW BYPASS INTERCHANGE OPTIONS

- C1 – Scenario S4 – ABDE
- C2 – Scenario S4 – ABCE
- C3 – Scenario S3 – ABE
- C4 – Scenario S2 – AE
- C5 – Scenario P3 – ABD
- C6 – Scenario P2 – AD



2040

AVERAGE ANNUAL DAILY TRAFFIC

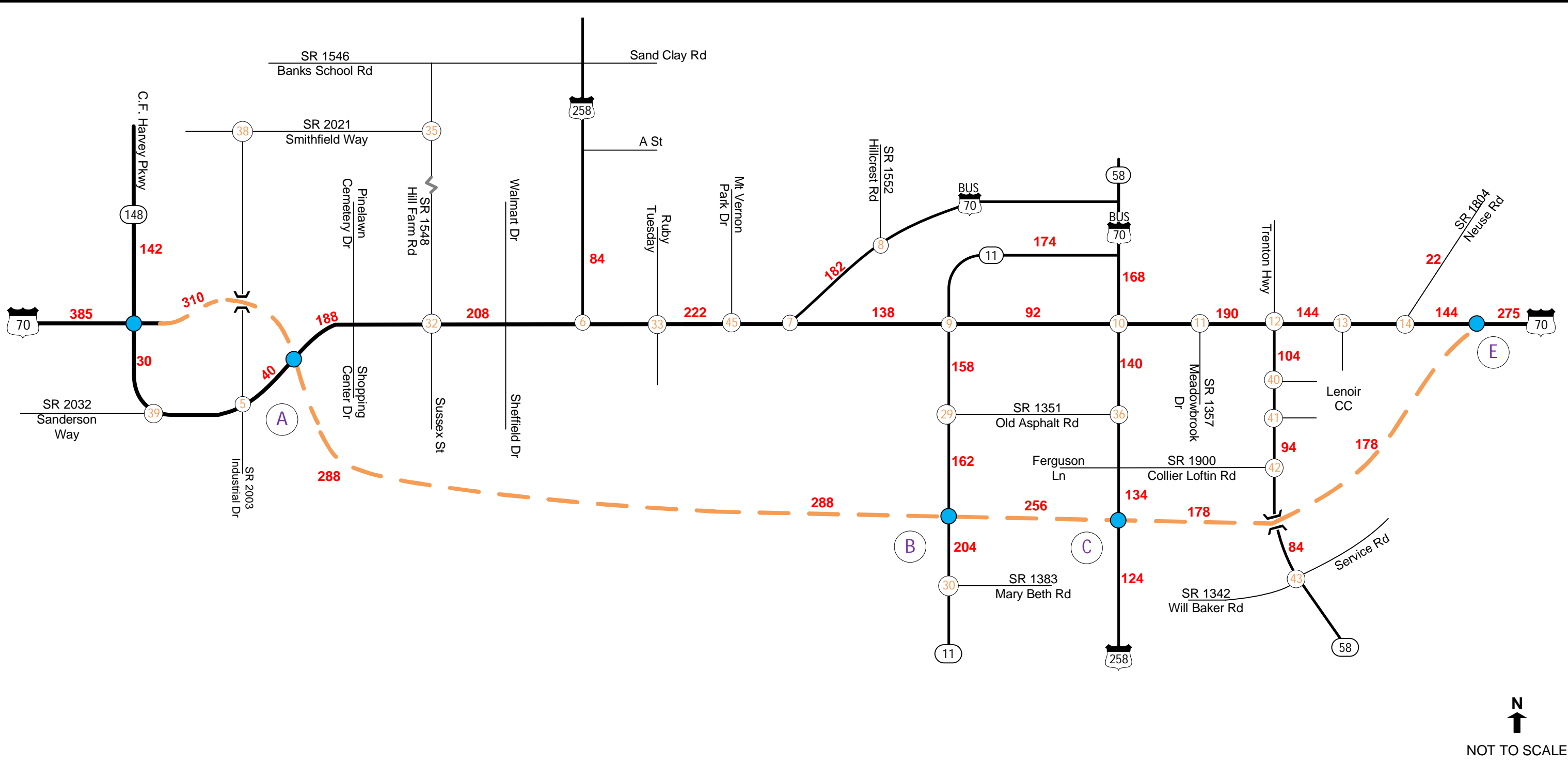
Scenario E3
Horizon Year

BUILD ALTERNATIVE S-4ABDE
(Shallow Bypass) SHEET 1 OF 1

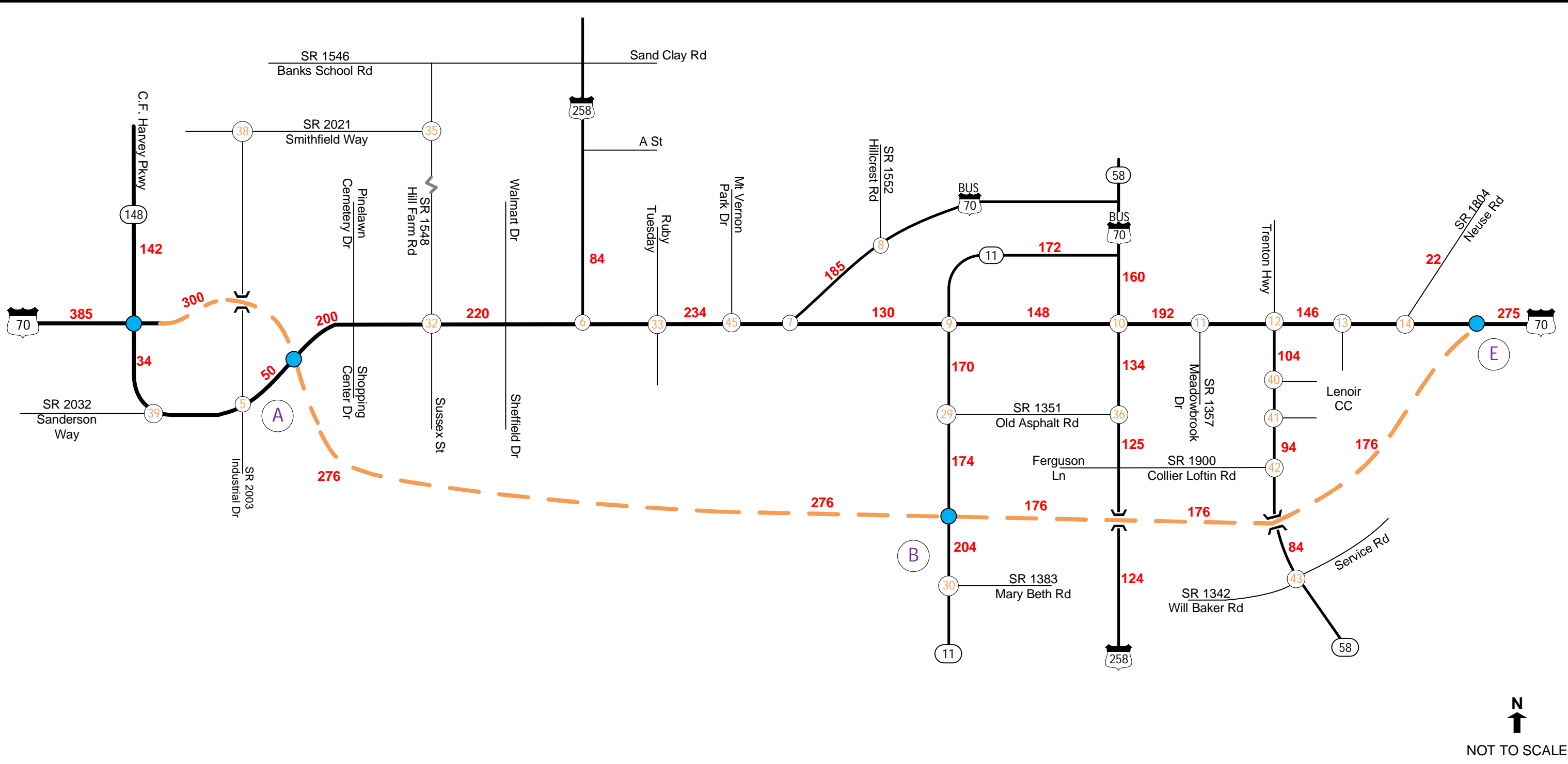
LEGEND

- ### Vehicles Per Day (VPD) in 100s
- 1- Less than 50 VPD
- X Movement Prohibited
- Roadway
- Future Interchange
- K Design Hour Volume Percentage
- PM PM Peak Period
- D Peak Hour Directional Split
- Indicates Direction of D
- (d,t) Duals, TT-STs (%)

TIP: R-2553	WBS: 34460
COUNTY: Lenoir	DIVISION: 2
DATE: November 7, 2016	
PREPARED BY: Parsons Brinckerhoff	
LOCATION: US 70 from west of NC 903 in La Grange to east of Old US 70 in Dover	
PROJECT: US 70 Kinston Bypass	



2040	AVERAGE ANNUAL DAILY TRAFFIC	Scenario E2 Horizon Year	BUILD ALTERNATIVE S-4ABCE (Shallow Bypass) SHEET 1 OF 1	
	LEGEND		TIP: R-2553	WBS: 34460
###	Vehicles Per Day (VPD) in 100s	K	Design Hour Volume Percentage	
1-	Less than 50 VPD	PM	PM Peak Period	
X	Movement Prohibited	D	Peak Hour Directional Split	
—	Roadway	→	Indicates Direction of D	
●	Future Interchange	(d,t)	Duals, TT-STs (%)	
			DATE: November 7, 2016	PREPARED BY: Parsons Brinckerhoff
			LOCATION: US 70 from west of NC 903 in La Grange to east of Old US 70 in Dover	
			PROJECT: US 70 Kinston Bypass	



2040

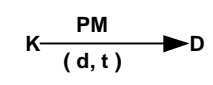
AVERAGE ANNUAL DAILY TRAFFIC

Scenario E4
Horizon Year

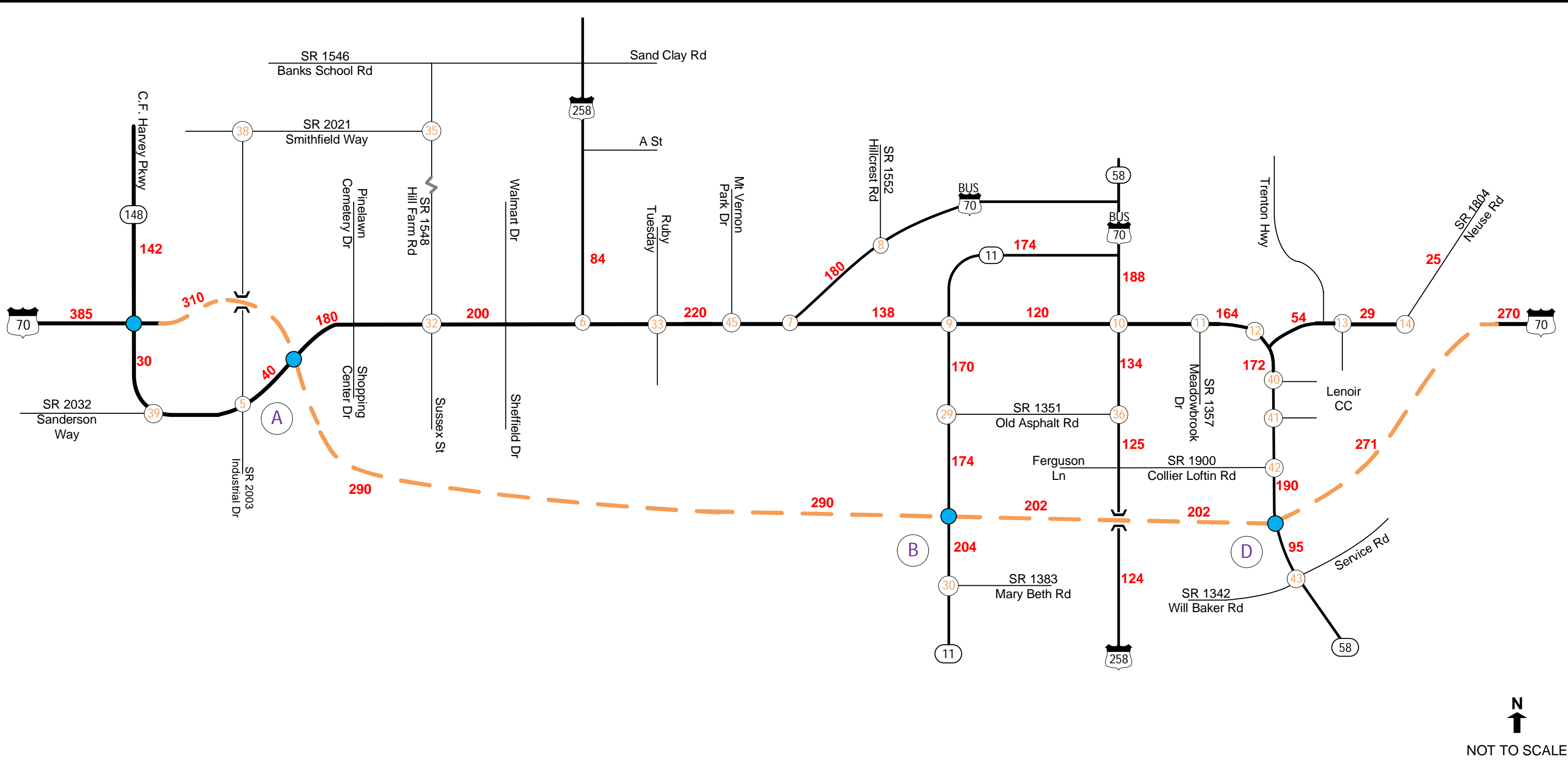
BUILD ALTERNATIVE S-3ABE
(Shallow Bypass) SHEET 1 OF 1

LEGEND

- ### Vehicles Per Day (VPD) in 100s
- 1- Less than 50 VPD
- X Movement Prohibited
- Roadway
- Future Interchange
- K Design Hour Volume Percentage
- PM PM Peak Period
- D Peak Hour Directional Split
- Indicates Direction of D
- (d,t) Duals, TT-STs (%)



TIP: R-2553	WBS: 34460
COUNTY: Lenoir	DIVISION: 2
DATE: November 7, 2016	
PREPARED BY: Parsons Brinckerhoff	
LOCATION: US 70 from west of NC 903 in La Grange to east of Old US 70 in Dover	
PROJECT: US 70 Kinston Bypass	



2040

AVERAGE ANNUAL DAILY TRAFFIC

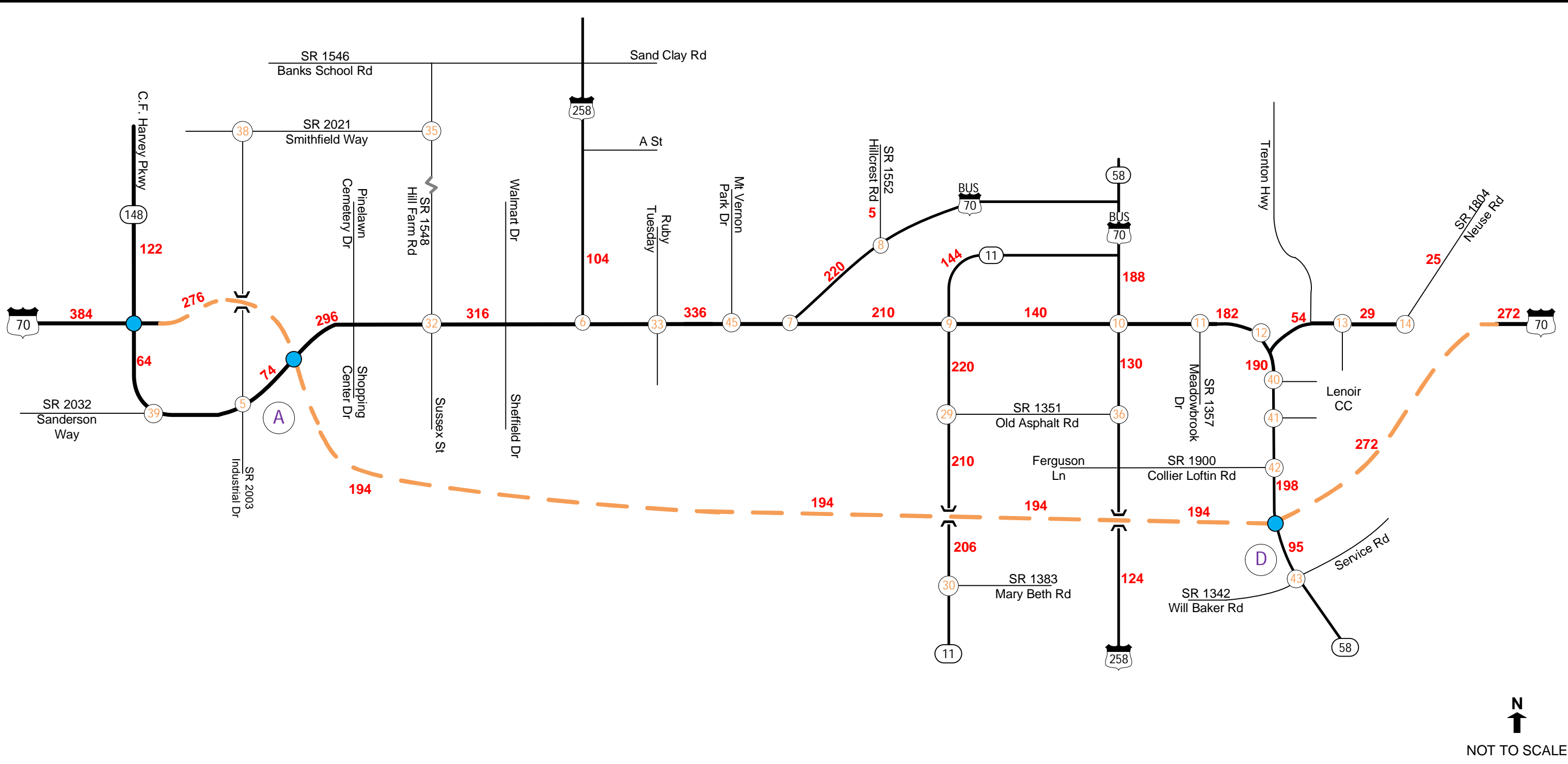
Scenario E9
Horizon Year

BUILD ALTERNATIVE P-3ABD
(Shallow Bypass) SHEET 1 OF 1

LEGEND

- ### Vehicles Per Day (VPD) in 100s
- 1- Less than 50 VPD
- X Movement Prohibited
- Roadway
- Future Interchange
- K Design Hour Volume Percentage
- PM PM Peak Period
- D Peak Hour Directional Split
- Indicates Direction of D
- (d,t) Duals, TT-STs (%)

TIP: R-2553	WBS: 34460
COUNTY: Lenoir	DIVISION: 2
DATE: November 7, 2016	
PREPARED BY: Parsons Brinckerhoff	
LOCATION: US 70 from west of NC 903 in La Grange to east of Old US 70 in Dover	
PROJECT: US 70 Kinston Bypass	



2040

AVERAGE ANNUAL DAILY TRAFFIC

Scenario E8
Horizon Year

BUILD ALTERNATIVE P-2AD
(Shallow Bypass) SHEET 1 OF 1

LEGEND

- ### Vehicles Per Day (VPD) in 100s
- 1- Less than 50 VPD
- X Movement Prohibited
- Roadway
- Future Interchange

- K $\xrightarrow{\text{PM}}$ D
(d, t)
- K Design Hour Volume Percentage
- PM PM Peak Period
- D Peak Hour Directional Split
- Indicates Direction of D
- (d,t) Duals, TT-STs (%)

TIP: R-2553	WBS: 34460
COUNTY: Lenoir	DIVISION: 2
DATE: November 7, 2016	
PREPARED BY: Parsons Brinckerhoff	
LOCATION: US 70 from west of NC 903 in La Grange to east of Old US 70 in Dover	
PROJECT: US 70 Kinston Bypass	